

ARCHITECTURAL RECORD

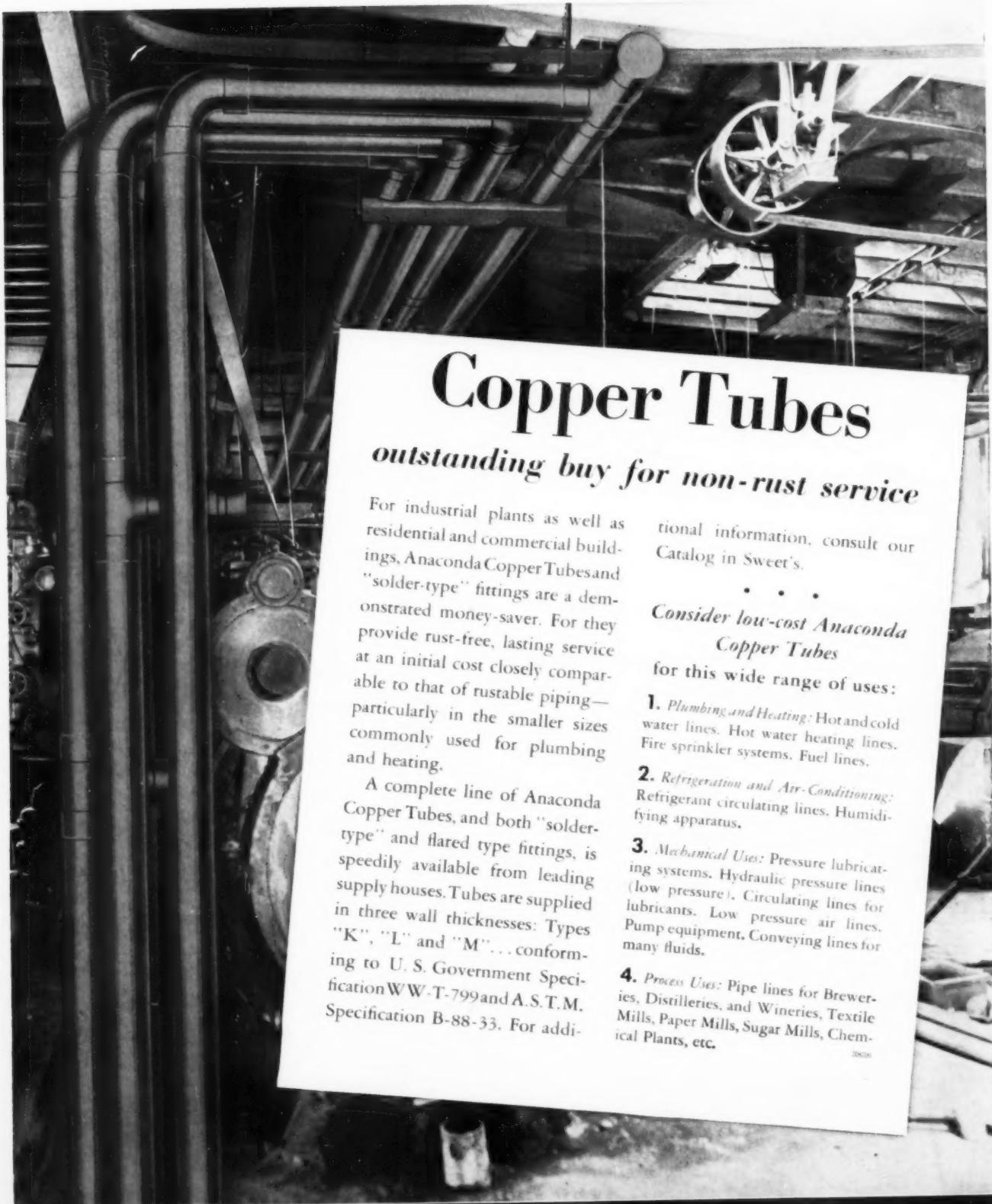
AMERICAN ARCHITECTURE AND PROJECTS

NUMBER 1938

BUILDING NEWS

DESIGN TRENDS

BUILDING TYPES



Copper Tubes

outstanding buy for non-rust service

For industrial plants as well as residential and commercial buildings, Anaconda Copper Tubes and "solder-type" fittings are a demonstrated money-saver. For they provide rust-free, lasting service at an initial cost closely comparable to that of rustable piping—particularly in the smaller sizes commonly used for plumbing and heating.

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tional information, consult our Catalog in Sweet's.

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ARCHITECTURAL RECORD

COMBINED WITH AMERICAN ARCHITECT AND ARCHITECTURE

VOLUME 84

NOVEMBER 1938

NUMBER 5

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BEHIND THE RECORD

SCHEDULED for December is one of the best-balanced issues of the year—and balance is one of the things we strive for. Previewing from back to front—because that is the order in which material to be published is completed—we encounter a 36-page *Building Types* section focused on office buildings.

Reliable standards, based on information obtained from authorities in various fields, will be presented in Time-Saver Standards form. These will cover: comprehensive data on management and maintenance requirements; acoustics; color; lighting; and heating, ventilating, and air conditioning. Illustrated case studies will include the Associated Press building, latest addition to Rockefeller Center, a new building in Boston for a large insurance company, and several smaller projects from other parts of the country. If you are planning or will soon plan an office building project, this study should save you considerable time and energy.

In the *Design Trends* section next month there will be at least three note-

(Continued on page 7)

Editorial Director: Thomas S. Holden. *Editors:* Orville C. Anderson (managing), James M. Fitch, Jr., Roger Wade Sherman. *Associate Editors:* Elisabeth Kendall, Irvin Kuper, Frank G. Lopez, Jr. *Art Director:* Gene Hawley. *Desk Editor:* William S. Patterson.

Editorial Consultant: Michael A. Mikkelsen.

Research Consultants: K. Lönnberg-Holm and C. Theodore Larson.

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Manuscripts, photographs, and drawings which conform to RECORD'S editorial aims are welcomed. Every effort will be made to return material (if accompanied by stamped, addressed envelopes); but the editors will not be responsible for losses.

Other Dodge Services: REAL ESTATE RECORD, SWEET'S CATALOG FILES, HOME OWNERS' CATALOGS, DODGE REPORTS, and DODGE STATISTICAL RESEARCH SERVICE

Beautiful Solid Nickel Silver



*graces this stately
corridor at
Rockefeller Center*

*Detail of Otis escalator used in in-
stallation above. Side and top panels
are of lustrous Solid Nickel Silver.*

PRACTICAL considerations called for escalators in this unusually attractive corridor...confronting the architects with the problem of blending utility with beauty.

That this was accomplished with signal success is obvious from the photograph above. Obvious, too, is the enhancement of the charm of the decorative motif through the use of Solid Nickel Silver for escalator trim.

The background of mottled marble

called for the use of an ornamental metal possessing lightness of tone. So the architects selected Solid Nickel Silver because it offered a rich pastel shade bordering on white that harmonized perfectly with the general decorative scheme.

The soft, lustrous sheen of Solid Nickel Silver makes it one of the handsomest materials for ornamentation... its warm, glowing highlights blending

well with wood, stone, marble, tile, etc.

Moreover, Solid Nickel Silver is extremely durable, possesses adequate structural strength, meets all fabricating requirements and is readily available through the usual sources of supply.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N.Y.

BEHIND THE RECORD

(Continued from page 5)

worthy features. One will be a symposium of some of the prize-winning papers submitted in the \$200,000 competition recently held by the James F. Lincoln Arc Welding Foundation; another will be a photographic portfolio of interior details of windows; and the third will be an article by Miss Catherine Bauer, research director of USHA, on that organization's first year.

Contents for the *Building News* section are the most uncertain of course, since late news is the yardstick for this section. However, among the stories now slated is one on a Farm Security Administration project in Missouri (interesting fabrication process); another on a Canadian resort consisting of hotel, commercial center, airplane hangar, cabins, and villas (large, complex problem); and another on a new Rhode Island community of prefabricated houses (photographed after the hurricane).

Housing stamp

WHILE attending the International Housing and Town Planning Congress recently held in Mexico City, Atlee B. Ayres of San Antonio took time out to post us a letter with one of the special stamps issued by the Mexican government for the congress. The letter arrived, but somewhere along the line the stamp was removed.

Because we couldn't let Mr. Ayres down after such thoughtfulness, and because the special issue should be put on record, we combed the stamp marts of New York until we located three stamps—one 20-centavo, one 40-centavo, and one 1-peso.



Here is a reproduction of the 40-centavo issue. (Notice to philatelists:

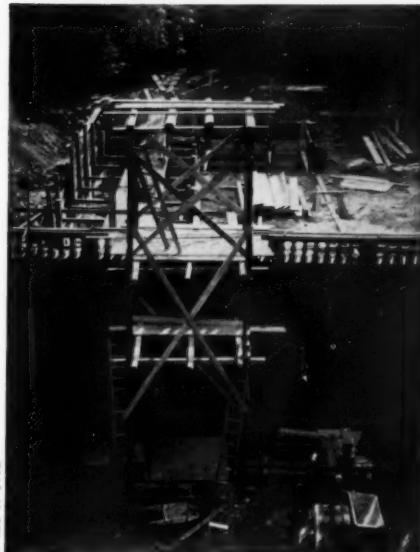
The original of this goes to Mr. Ayres, the 1-peso number goes to the man who ran the lot to earth, and the last time we saw the 20-centavo item it was doing all right in a parchment envelope in our own wallet.)

Footnote on magazines

THERE are two types of magazines. One is the lay publication, in which the emphasis is on *entertainment*. The other is the technical publication, in which the emphasis is on *information*. Primarily, readers of the latter type want information which helps them in their work, which is useful.

But there are many types of information which might be labeled useful—especially in the architectural field—and there are many types of readers. A publisher, if he is to survive in this field, must be even more exact in his definitions. He has to recognize the democratic principle of the greatest good for the greatest number, and set his editorial machine up accordingly.

Here at the RECORD we say that publishable information must be of *maximum usefulness to a maximum number of readers*. And though, in our recorded standards, this definition requires some 10 or 12 typewritten pages to qualify it further, we believe its implications are apparent enough to indicate which side of the street the RECORD is working.



Contemporary Prague

OUR STORY of Czechoslovakian architecture last month seems, at all events, to have been timely. There were moments, however, when we doubted that the buildings shown would be intact when the October issue came from the press. The U. S. Legation in Prague seems to have been uncertain, too. Illustrated here is a bombproof shelter under con-

(Continued on page 8)



"With your permission, Mr. Smith, I would like to use the diameter of Mrs. Smith as one module—"

—Drawn for the RECORD by Alan Dunn

BEHIND THE RECORD

(Continued from page 7)

struction on the Legation grounds at Prague.

Better buildings

SOME WEEKS ago in Washington a government housing official, in the course of a general conversation, asked us: "What is your editorial policy: what do you stand for?"

"The RECORD," we said, "stands for better buildings."

"Yes, of course. But what else?"

"Nothing else."

And that's a fact. Our entire editorial program revolves around one objective: *better buildings*. If, by placing on record the deficiencies and potentialities of contemporary building, we can help our readers design better buildings, we'll be busy enough, thank you.

In fact, with present-day users making more and more demands of each type of building—whether it be a small house or a department store—and with manufacturers constantly stepping up their facilities to meet these demands, we are decidedly humble in face of the herculean task ahead.

Certainly, in our determination to keep readers well informed, we will have little time or space for by-paths, for topics of indirect value. The single subject of *better buildings* is big enough for any magazine to tackle.

That is why, for example, the RECORD is organized into three sections; it is why, instead of periodic special issues,

we strive for month-in-and-month-out editorial performance; it is the why of *Building Types*; and it is why the buildings men build, and not the men themselves, are emphasized by us. To skid close to the metaphysical, it is why we are what we are.



Follow-up story

ONE PROBLEM architects rarely have to solve is how much water will their structure draw. Not so Ephriam Field, however. Almost two years ago (see AR, March 1937, page 36) he designed the first of R. G. Le Tourneau's 33 (to date) factory-built, arc-welded steel houses for employees, knowing that it was to be floated across the mile-wide Illinois River to a special site. The two views above illustrate the structural continuity and water tightness that welding makes possible. N.B. Mr. Field is not a naval architect.

CALENDAR OF EVENTS

- November 5, 12, 18, 19—"The Chemistry and Physics of Fine Arts Painting," series of lectures by F. W. Weber. The Art Students' League, 215 W. 57th Street, New York, N. Y.
- November 27—Closing date competition for Monument to Jose Marti, Cuban patriot. Pro-Monumento a Marti, Comision Central, Empedrado 5, Havana, Cuba.
- December 5-10—Thirteenth National Exposition of Power and Mechanical Engineering. Grand Central Palace, New York, N. Y.
- December 12-14—Convention, National Warm-Air Heating and Air Conditioning. Netherland-Plaza Hotel, Cincinnati, Ohio.

Change of name

THE NAME of the art collection of the Smithsonian Institution, for many years designated the "National Gallery of Art," was changed by Act of Congress approved March 24, 1937, to the "National Collection of Fine Arts." This collection is now housed in the Natural History building of the United States National Museum. The Act indicated gives to the art collection and building presented to the nation by the late Andrew W. Mellon, designation as the "National Gallery of Art."

Changes of address

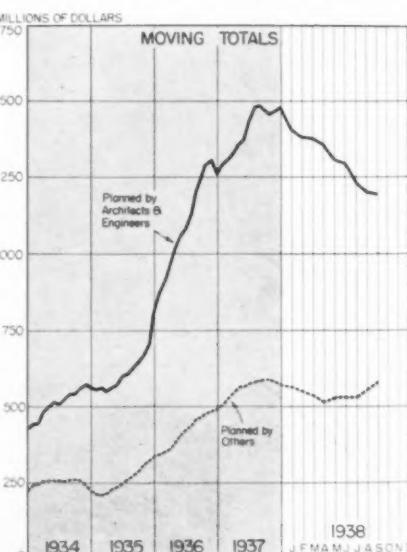
George M. Ewing, architect, formerly with Karcher & Smith, architects, 1520 Locust St., Philadelphia, Pa., will shortly

move to new offices in the Architects' Building, 121 S. 17 St., in the same city. . . . Elisabeth Coit, AIA, moved her office October 1st to 123 E. 54 St., New York, N. Y. . . . Ernest A. Grunsfeld, Jr. and Wallace F. Verkes, Associate, announce the removal of their offices for the general practice of architecture from the Tribune Tower to 540 N. Michigan Ave., Chicago, Ill. . . . Hewitt, Setter & Hamlin, Inc., architects, announce the closing of their offices. Mr. Hewitt will retire from active practice temporarily. Mr. Hamlin has joined the organization of Ralph D. Thomas & Associates, consulting engineers. Mr. Setter will become a partner in the firm of Magney & Tusler, architects and engineers. . . . Paul Atchison, architect, announces that George Emery, architect, will hereafter be associated with him in the practice of architecture under the firm name of Atchison & Emery, Architects, 1254 Monaco Parkway, Denver, Colo.

Correction

A MIX-UP in captions on PWA photographic releases resulted in an error on page 101 of the RECORD for September. The photo thereon showed, according to chief architect Chester Oakley, a view of the Kenfield development in Buffalo, N. Y., not, as stated, of a government project in Austin, Texas.

WHO BUILDS AMERICA?



Buildings planned by architects and engineers account for 71% of the total value of all building contracts awarded in the 37 Eastern states, according to F. W. Dodge Corporation reports. The curves on the above chart represent the moving annual totals of building contract awards. Each figure plotted for a given month represents the total for the twelve-month period ending with that month. This type of curve registers the trend and eliminates the seasonal factor.

PROGRAM
for
AN ARCHITECTURAL COMPETITION

**for A FESTIVAL THEATRE
AND FINE ARTS BUILDING**

At the College of William and Mary, Williamsburg, Va.

Sponsored By
THE AMERICAN NATIONAL THEATRE AND ACADEMY

PURPOSE. One of the major interests of the American National Theatre and Academy is the encouragement of the erection of theatres that are properly planned, designed, and equipped for both professional and amateur productions. It is further hoped that the theatre buildings will have facilities for housing the Fine Arts activities of the communities and will become the local artistic centers.

The purpose of this competition is to encourage the designing of such theatres with adequate, well-arranged stages and working areas properly related to auditoriums of flexible seating capacities, together with rooms and services devoted to the Fine and Applied Arts.

This competition is entirely educational in its objectives as there is no contract for subsequent architectural services involved. However, in order to make the problem as specific and concrete as possible, a site has been selected at the College of William and Mary, Williamsburg, Virginia. A brochure describing the College and its department of Fine Arts, together with a map of the site, will be sent to each competitor upon receipt of his entry blank.

PRIZES. Cash awards for the designs judged best by the jury total \$1,500.00.

First Prize.....	\$500.00
Second Prize.....	300.00
Third Prize.....	200.00
5 Citations of \$100 each.....	500.00
	<hr/>
	\$1,500.00

Citations and their accompanying prizes of \$100 each will be awarded for designs of general excellence or for designs which show distinct contributions to theatre de-

signing, i. e., designs which show a special feature or features which are especially ingenious, original, and workable.

COMPETITORS. Any architect, designer, engineer or draftsman residing in the United States is eligible to compete, with the exception of persons in the employ of ARCHITECTURAL RECORD, the College of William and Mary, or of the Museum of Modern Art. Designers may associate or form groups to submit competition drawings, and each such group is considered a single competitor.

The Sponsors have invited five architectural firms to compete with a remuneration of \$400.00 each. They are Goodwin & Stone, New York, N. Y.; Walter Gropius and Marcel Breuer, Cambridge, Mass.; Michael Hare, New York, N. Y.; Harrison & Fouilhoux, New York, N. Y.; Richard Neutra, Los Angeles, Cal.

All competitors will have equal opportunity to win prizes as all designs will be judged at the same time and will remain entirely anonymous until after the final judgment.

ENTRY BLANKS. Each competitor shall file a completely filled in entry blank which is merely a record of his intention to compete. Additional entry blanks can be obtained from, and must be filed with, the Professional Adviser, Kenneth K. Stowell, A. I. A., care of ARCHITECTURAL RECORD, 119 West 40th Street, New York, N. Y.

DATES. Competition begins with the publication of this program in the November issue of ARCHITECTURAL RECORD. Competition closes at 5:00 P.M. Eastern Standard Time, January 31st, 1939. Judgment by the Jury will be held beginning February 14, 1939.

ENTRY BLANK

KENNETH K. STOWELL, Professional Adviser,
c/o Architectural Record,
119 West 40th Street, New York, N. Y.

Dear Sir:

It is my intention to submit a design in the Architectural Competition for a Festival Theatre and Fine Arts Building at the College of William and Mary, Williamsburg, Va., sponsored by The American National Theatre and Academy. Please send me the brochure and the map of the site.

Signed (full name) _____

Street _____

Profession or Occupation _____ City and State _____

Under a ruling of the American Institute of Architects Committee on Competitions, members of the A.I.A. are free to enter this competition.

JURY OF AWARD. The Jury shall consist of three architects, a theatre expert, and an educator associated with the Fine Arts. The names of the jurors will be announced at the close of the judgment.

BASIS OF AWARD. The prizes will be awarded to the competitors for the designs which in the judgment of the Jury offer the best solution of the problem as set forth in the program.

* * * * *

THE PROBLEM is to design a festival theatre providing all the facilities necessary for dramatic productions, operas, concerts, dance recitals, pageants, lectures, and motion pictures. In addition, the building shall provide for all the activities of a college Fine Arts Department. Provisions shall be made to prevent conflicts in the operation of these two parts. The College departments will not use the Festival Theatre Auditorium or its service rooms when festivals or other scheduled performances are in progress. The multi-use of certain rooms or areas is suggested, however, in the interest of economy and efficiency; and the designer shall indicate by lettering on the plans the uses of all rooms and spaces, using abbreviations where necessary, with a table of abbreviations arranged alphabetically.

THE SITE shall be considered to be that portion of the campus of the College of William and Mary, Williamsburg, Virginia, shown on the topographical map. Roads may be relocated and parking spaces shall be allocated and indicated. The building should not form a prominent visual part of the College group, but rather be somewhat screened from it. Style and scale need not conform to neighboring buildings, but some harmony is desired in material and color.

THE FESTIVAL THEATRE

The auditorium shall seat 1500 spectators (5% variation permitted the designer). Means shall be provided, and indicated on the drawings, for reducing the apparent size of the auditorium and thereby limiting the seating

capacity to the size of the expected audience on occasion, perhaps to about 600 to 900. There should be access for spectators without passing through dark or empty portions of the theatre.

The Festival Theatre naturally should have such facilities as a foyer, ticket booths, cloakrooms, lounges, toilets, offices for the general manager, clerical staff, etc.

To encourage new solutions to the problems of theatre design, the competitor is allowed full discretion in the provisions and arrangements his design makes for the stage and production facilities as long as they offer a practicable working solution which is the *equivalent* of the following: A proscenium 34' to 38' in width; a stage proper about 90' wide, 40' to 50' deep and 75' to 80' to the gridiron; a cyclorama, allowing room for stacking and crossovers during the performance; a light control room or area; a broadcasting control room; a projection room for sound motion pictures and for special theatrical effects.

There shall be accommodations for an orchestra of at least 40 musicians, and the orchestra pit for opera should be convertible for more intimate productions.

The general stage facilities to be used for any productions, Public or College, should include the following: Two star dressing rooms; dressing rooms for 30 actors, each room accommodating 4 to 6; two chorus rooms, one for 30 men, one for 30 women; locker rooms for ushers, for stage hands, electricians, helpers, painters, etc.; janitor's room; electricians' room for storage and repairs.

Stage facilities for special use of visiting companies should include: Ample storage space for extra sets and properties of visiting repertory companies; a wardrobe or costume room; a musicians' room with locking storage for instruments; three small offices for stage managers, directors, conductor.

Stage facilities for the use of the Theatre Division of the College shall include:

For the Workshop Section: A construction and paint shop about 30'x50', minimum height 30', opening onto main theatre stage (and accessible to the lecture room stage) with a storage room for tools and supplies and



Fairchild Aerial Surveys, Inc.

Airview of the College of William and Mary, Williamsburg, Virginia. The site of the proposed Festival Theatre and Fine Arts Building is in the foreground to the right of the football field, as will be shown on the topographical map which will be sent to each competitor.

a small office for the construction foreman; a property-making shop; storage room for sets and props; a rehearsal room of the same dimensions as stage proper, i.e., acting space, not including wings; a small kitchen adjacent.

For the Design Section: A stage design drafting room for 15 students; costume design rooms, including a sewing room, a dye and drying room, a studio for designing and demonstration, and a costume storage room with closets.

For the Voice Training Section: A listening room, two soundproof studios, and a control room, in all about 500 sq. ft.

The Offices of the College Theatre Division, consisting of a private office for the Head of the Division with a clerical and file room adjoining and five small offices for instructors.

AN EXHIBITION GALLERY shall be provided accessible to both Public and College. The gallery proper should be adaptable to subdivision for different exhibitions, providing about 500 running feet of exhibition space and should have access from the theatre foyer or lobby with which it may be combined. A storage room for exhibi-

tion screens or partitions should be provided and a receiving and shipping room, as well as a small office for the director of the exhibitions.

Terraces and Lounges where refreshments may be served would be a welcome addition to the Festival Theatre. These should be accessible also from the Exhibition Gallery and be served by an adequate kitchen.

THE DEPARTMENT OF FINE ARTS

The Department of Fine Arts of the College of William and Mary serves the whole undergraduate body rather than being a specialized professional school. There are five Divisions of this Department: Architecture, Sculpture, Painting, Music, and the Theatre. The requirements of the Theatre Division are listed with those of the Festival Theatre. The statement of the requirements of each of the other Divisions follows that of the Library, Lecture Rooms, and Administration Offices.

I. *The Library* will provide stack and filing space for the proper storage of some 20,000 books, 15,000 mounted photographs, 20,000 lantern slides, 3,000 phonograph records, and 200 movie films. Workrooms and offices for librarians will be necessary. The Study and

Reading Room for 150 students should be adjacent to stack and filing space. There will be also six small rooms for listening to records, to be controlled from Study Room.

II. *Administration Offices* should be near library, lecture rooms, and work rooms, and should include a private office for Director with clerical staff and file room adjacent; a conference room, with kitchen to serve daily luncheon to staff and guests (25 people); and three offices for visiting professors, or to be used for small seminars.

III. *The Lecture Rooms*, each equipped for lantern slide projection. There shall be one Large Lecture Room for 300 students, with projection booth and with a stage platform which may be used as laboratory theatre (preferably accessible to the construction and paint shop). Three lecture rooms for 50 students each are also required.

IV. *The Architectural Division* requires a drafting room for 25 students, with locker space; an instructor's office and a private drafting room for him.

V. *The Sculpture Division* requires three studios, all with north light, viz., a large general studio for 25 students; a life class studio for 25 students, and a private studio for the instructor adjacent to his office. A casting room will be necessary and a workshop, with room for storage of materials. A coatroom with locker space for 50 students, and a wash-up room are requisites also.

VI. *The Painting Division* requires studios with north light, viz., a Life Class studio for 40 students; a large painting studio for 20 students, a general design room for 20 students, and a private studio for resident painter adjacent to his office. A storage room with closets will be necessary and a coatroom with locker space, as well as a wash-up room.

VII. *The Music Division* requires soundproofed rooms, viz., twelve practice rooms each about 8'x10'; four teaching studios, used also as instructors' offices; a band and orchestra room with storage space for instruments and for band uniforms; and an office for the Head of the Music Division with a clerical and music file room adjacent.

REQUIRED DRAWINGS

All drawings shall be in black ink or clear sharp black pencil, properly fixed, on stiff white illustration board or on white opaque paper mounted on stiff board. All sheets shall be 30x40 in. A single line border shall be drawn one inch from the edge to leave a white margin around the entire sheet. No lettering of the title shall be necessary, but a space one inch wide inside the border line shall be left at the bottom of the sheet for the mounting of a title paster which may be affixed to designs for publication after the judgment.

a. Floor plan or plans shall be shown at the scale of $\frac{1}{2}'' = 1'-0''$. The use or name of each area shall be indicated by lettering *within* (*or directly adjacent to*) each area, using abbreviations if desired.

b. The four elevations shall be shown at the scale $\frac{1}{2}'' = 1'-0''$.

c. A plot plan shall be shown at the scale of $\frac{1}{2}'' = 1'-0''$ and the building shall be indicated by its roof plan. Parking areas, roads, and landscape features shall be shown on this plot plan.

d. A longitudinal section through the main auditorium and stage at right angles to the proscenium shall be shown at a scale of $\frac{1}{2}'' = 1'-10''$. This section shall show basements and upper stories, if any.

e. A perspective rendering will be required only of the winners of 1st, 2nd and 3rd prizes, to be delivered within two weeks after the award. It shall show the building as seen from a point which best explains its form, character, and architectural treatment and shall be drawn in a space not more than 24" in width or height. The rendering shall not be in color.

BRIEF. A short anonymous "brief" describing the advantages or special features of the design may be submitted. This brief must be not more than 350 words in length and must be on the front of the drawing.

ANONYMITY OF DRAWINGS. The name or names of competitors shall not appear on the drawings, nor any mark of identification whatever. Pasted securely on the back of each and every sheet, in the upper left-hand corner, shall be an opaque sealed envelope containing the full name and complete address of the competitor. If the design is submitted by associates, the full names of all such associates must be given, and instruction as to the name in which a check should be made out in the event of the award of a prize for the particular design.

DELIVERY OF DRAWINGS. All drawings shall be addressed to Kenneth K. Stowell A. I. A., Professional Adviser, c/o The Museum of Modern Art, Rockefeller Center, New York, N. Y. All drawings shall be sent by mail, express, or delivered not later than 5:00 P. M. Eastern Standard Time, January 31, 1939. Drawings must be securely wrapped and protected against crushing, bending, or breaking.

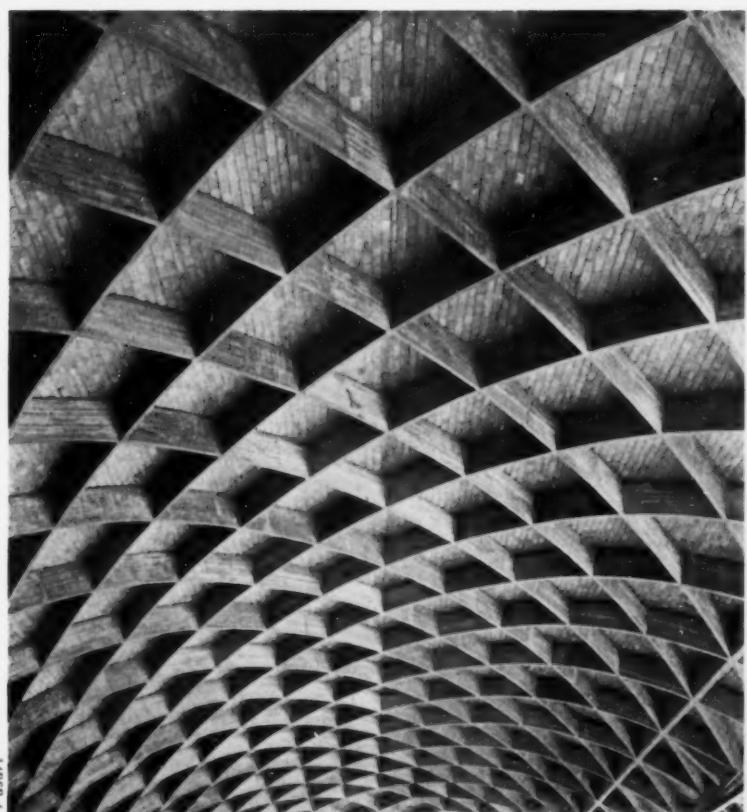
All designs are submitted at the competitor's risk. Reasonable care will be used in handling all drawings. Drawings which do not receive prize awards or which are not reserved for publication or for exhibition will be returned to the competitors within a reasonable time.

The competitor, either an individual or group, in submitting a design agrees that the drawings automatically become the property of The American National Theatre and Academy, in the event that the design is awarded a prize or citation. It is further agreed that The American National Theatre and Academy has the right to publish and exhibit any or all drawings submitted in this competition.

PUBLICATION AND EXHIBITION. No design submitted in this competition will be exhibited or made public until after the award of the jury. The prize-winning designs and other selected designs will be published in Architectural Record, Theatre Arts, and in other magazines and newspapers. A report of the jury will be sent to each competitor.

COMMUNICATIONS. It is believed that the purpose, requirements, and conditions of this competition are clearly stated in the program and that, therefore, in fairness to all competitors no questions regarding requirements of the competition can be answered.

BUILDING NEWS



Hangar designed for span and bomb resistance... See p. 54

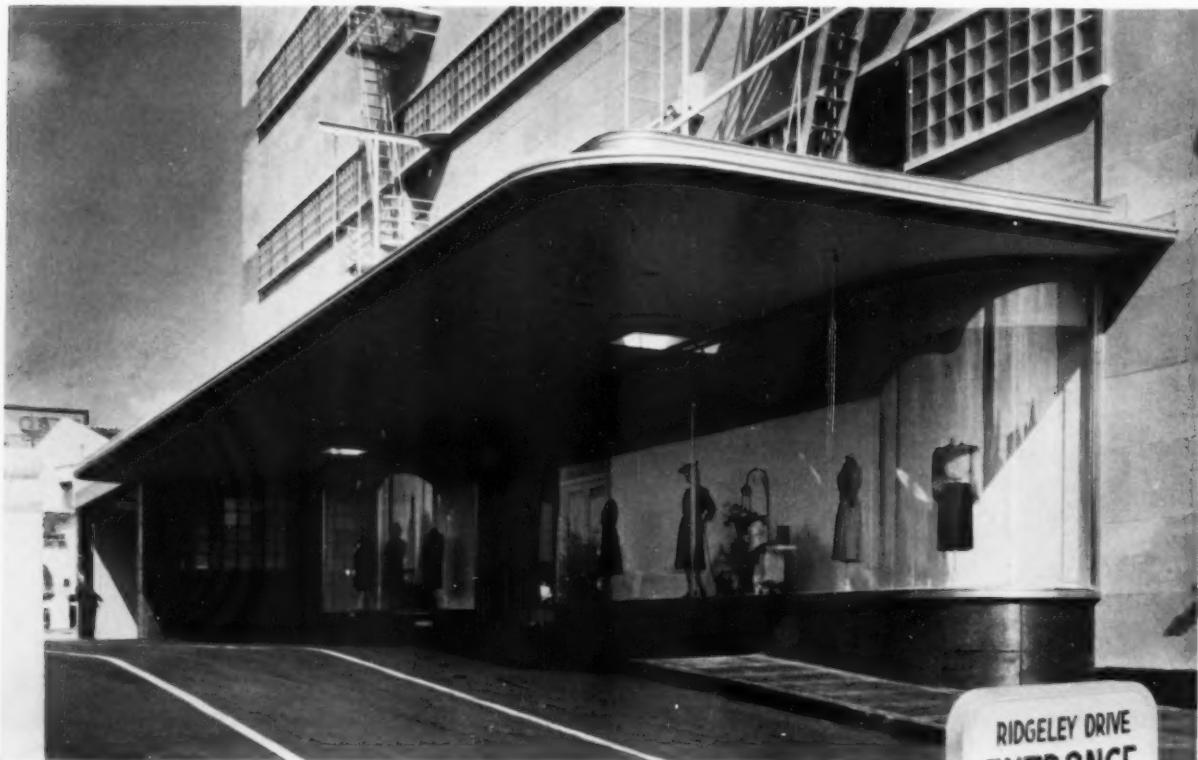
ARCHITECTURAL
RECORD

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AMERICAN ARCHITECT AND ARCHITECTURE



Photos by Stuart O'Brien

Coulter Department Store, Los Angeles. Reinforced-concrete walls are "blocked" to simulate Bedford limestone; several brands of Portland cement are used in the brush coat to give the different color tones.

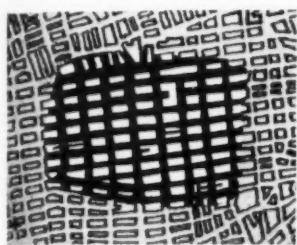


Rear entrance with parking area at left. Sixty percent of store patrons arrive by auto and enter here.

LOS ANGELES: NEW STORE PROVIDES FOR MOTORIZED PATRONS

STILES O. CLEMENT, Architect

OLD



Central shopping area of Los Angeles, shaped by old transportation methods

NEW



Newest shopping district along Wilshire Boulevard, shaped by motor transport

Los Angeles is, in population, approximately one-fifth the size of Greater New York, but it is spread over an area about 50% larger. Its widely scattered inhabitants are housed, for the most part, in detached single-family dwellings, on lots usually big enough to permit keeping autos. And the automobile does play an important part in solving the city's transportation problem: per-capita ownership of cars here is the highest in the world.*

Los Angeles' newest shopping district extends several miles along Wilshire Boulevard; the influence of increased human mobility on the plan of the city becomes apparent when this section is compared with the old, central trading area of Los Angeles, relatively centralized and congested. Spread out as they are, the stores along Wilshire Boulevard are generally open to view on several sides: competing electric signs and advertising become less effective in gaining attention than distinction in the design of the building itself.

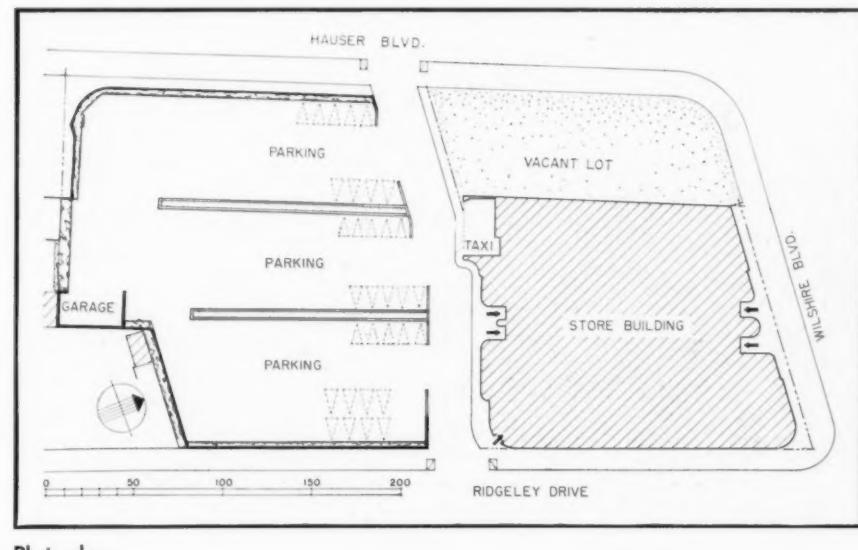
On this street was recently opened

*According to 1936 registration figures and 1930 population statistics (the latest available), Los Angeles has one automobile for every 2.7 persons; Detroit, the center of the U. S. motor industry, has one auto for every 3 persons; Greater New York has one for every 8 persons.

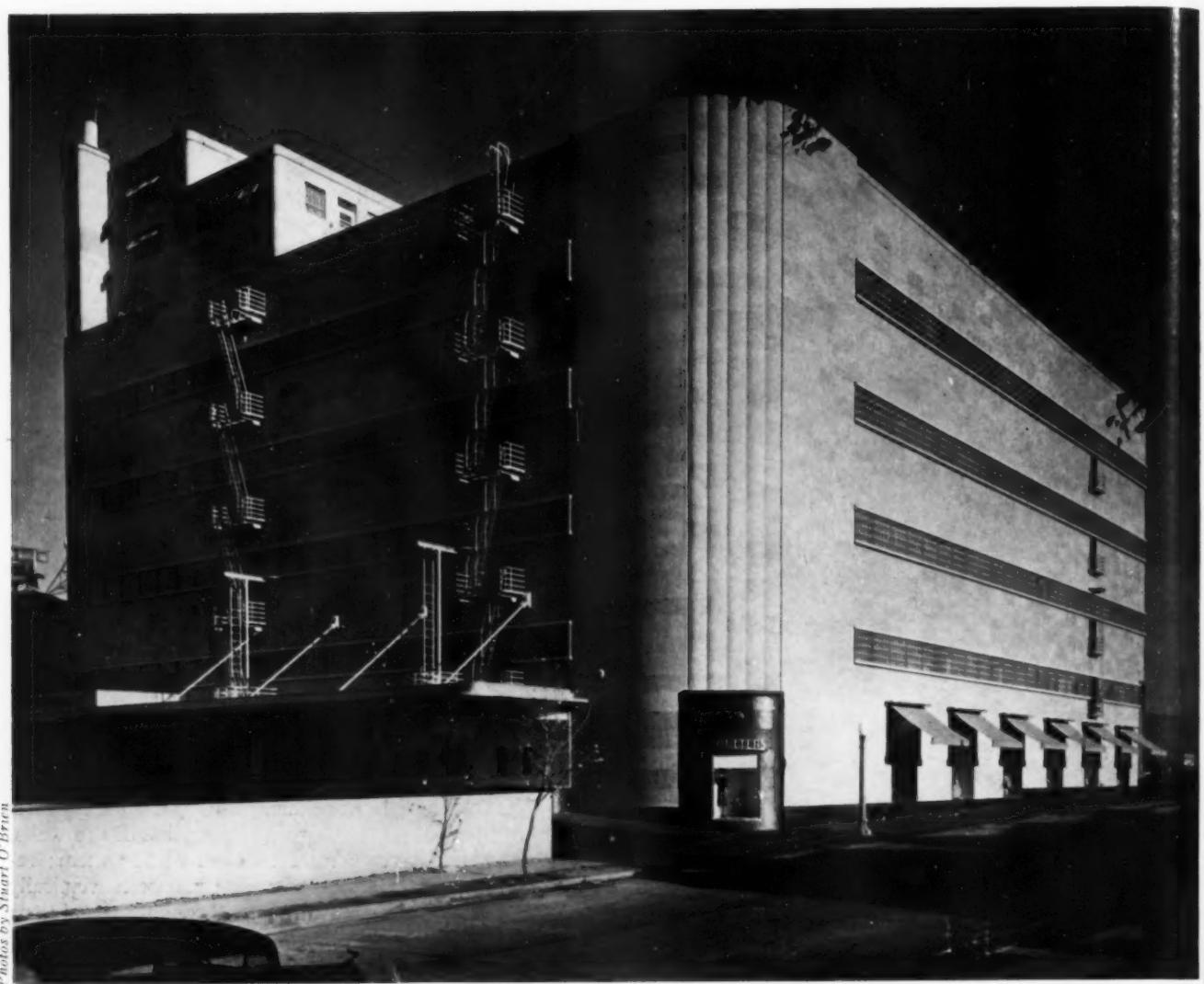
a reinforced-concrete four-story-and-basement structure, Coulter's Department Store. Sixty percent of the patrons of this store arrive by automobile and enter through the parking area rather than from the street. The rear entrance has therefore been made a prominent part of the design: it opens on a marquise-sheltered sidewalk and is flanked by display windows on both sides. A small lobby is located there, equipped with seating facilities, telephone, and "Will Call Desk."

There are no windows: the building is completely air-conditioned. In the upper floors, long horizontal panels of glass brick provide daylight illumination; these are at a height from the floor sufficient to permit wall cases and fixtures to be placed below them. The glass-brick panels are hung on the outside of the walls, structural columns behind them; reinforcing steel runs both vertically and diagonally through the columns to assume possible earthquake stresses.

The structure has been designed to permit addition of an extra story without any structural alterations below; this proposed fifth floor is to be in the form of a U with the elevator foyer opening onto a garden.

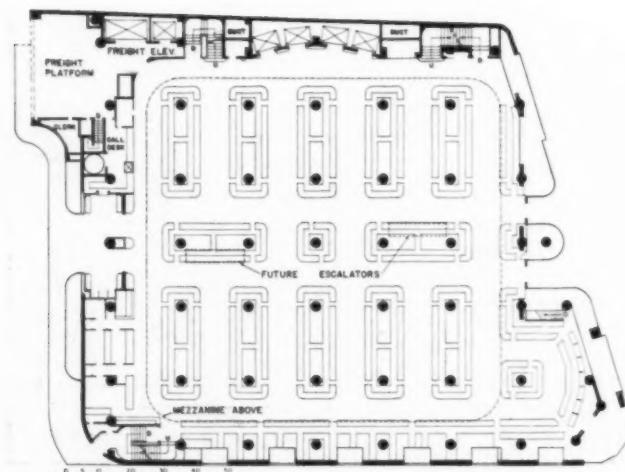


Plot plan

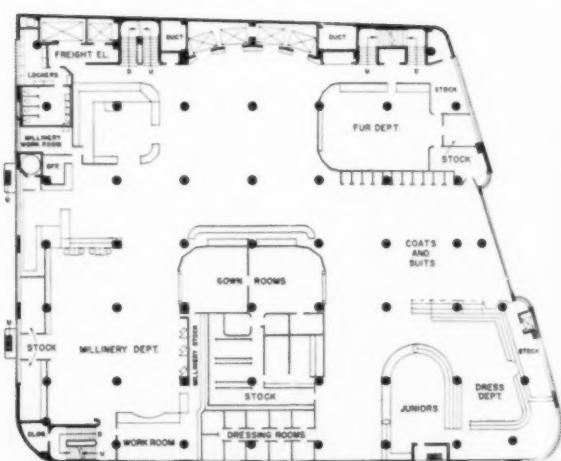


Photos by Smart O'Brien

Rear view of Coulter Department Store with parking area at left and a freight platform beyond entrance

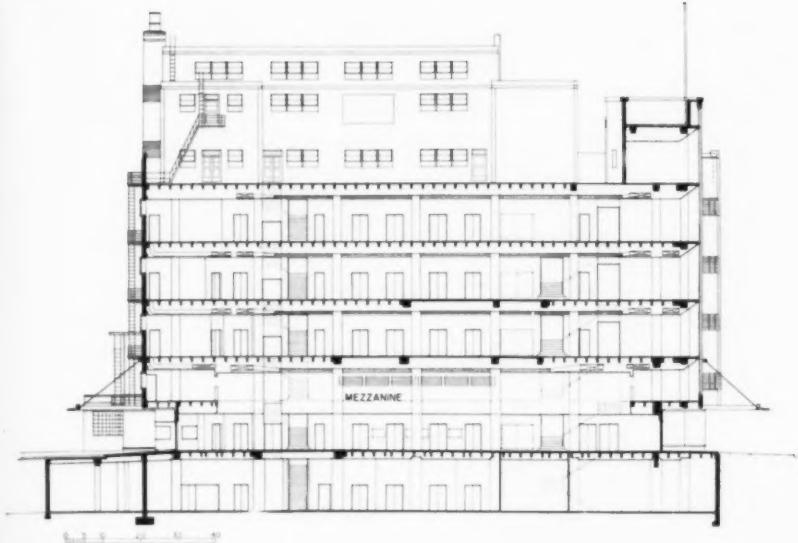


First floor



Third floor

DEPARTMENT STORE IN LOS ANGELES



Section

ON THE MAIN FLOOR, circulation is simplified by placing front and rear entrances opposite each other and joining them by a double main aisle. Elevators and stairways are centrally located against the west wall, equally accessible from either entrance, yet removed from the main flow of traffic. Removable metal-bound panels are set into all floors beneath the counters and cases which adjoin the center aisle; these panels cover openings intended to permit future installation of escalators without the necessity for structural alteration. Above the street floor is an enclosed mezzanine balcony housing the administrative offices; mezzanine walls are broken by long horizontal louver panels, which assist ventilation and provide a means of inspection from the mezzanine level.

The air-conditioning system is extremely flexible. All free space between ceilings and floors above is a continuous air-conditioning plenum chamber. Openings can be cut into the floor to draw air from rooms; if, at some future time, new rooms are partitioned off, air-conditioning outlets can be made by cutting openings into floors wherever they are wanted.

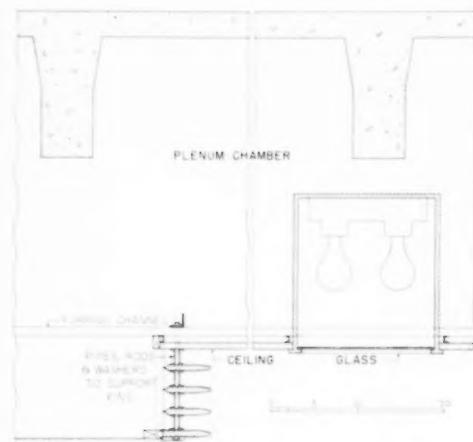


Wilshire Boulevard entrance . . . A double main aisle leads directly to . . .



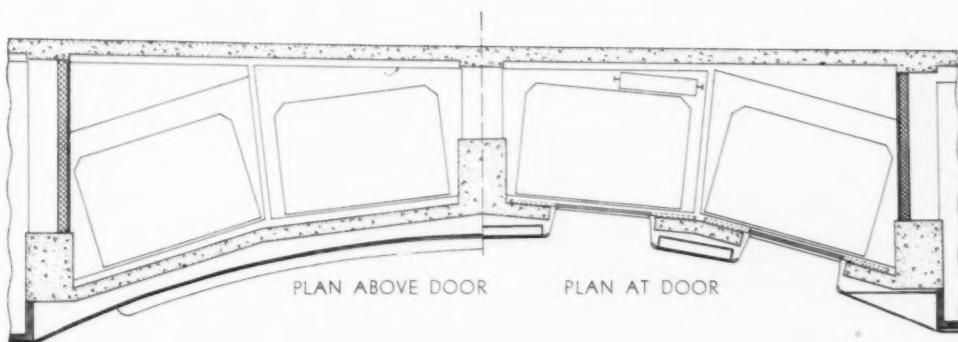
automobile entrance at rear . . . Note "Will Call Desk" in lobby.

Photos by Stuart O'Brien

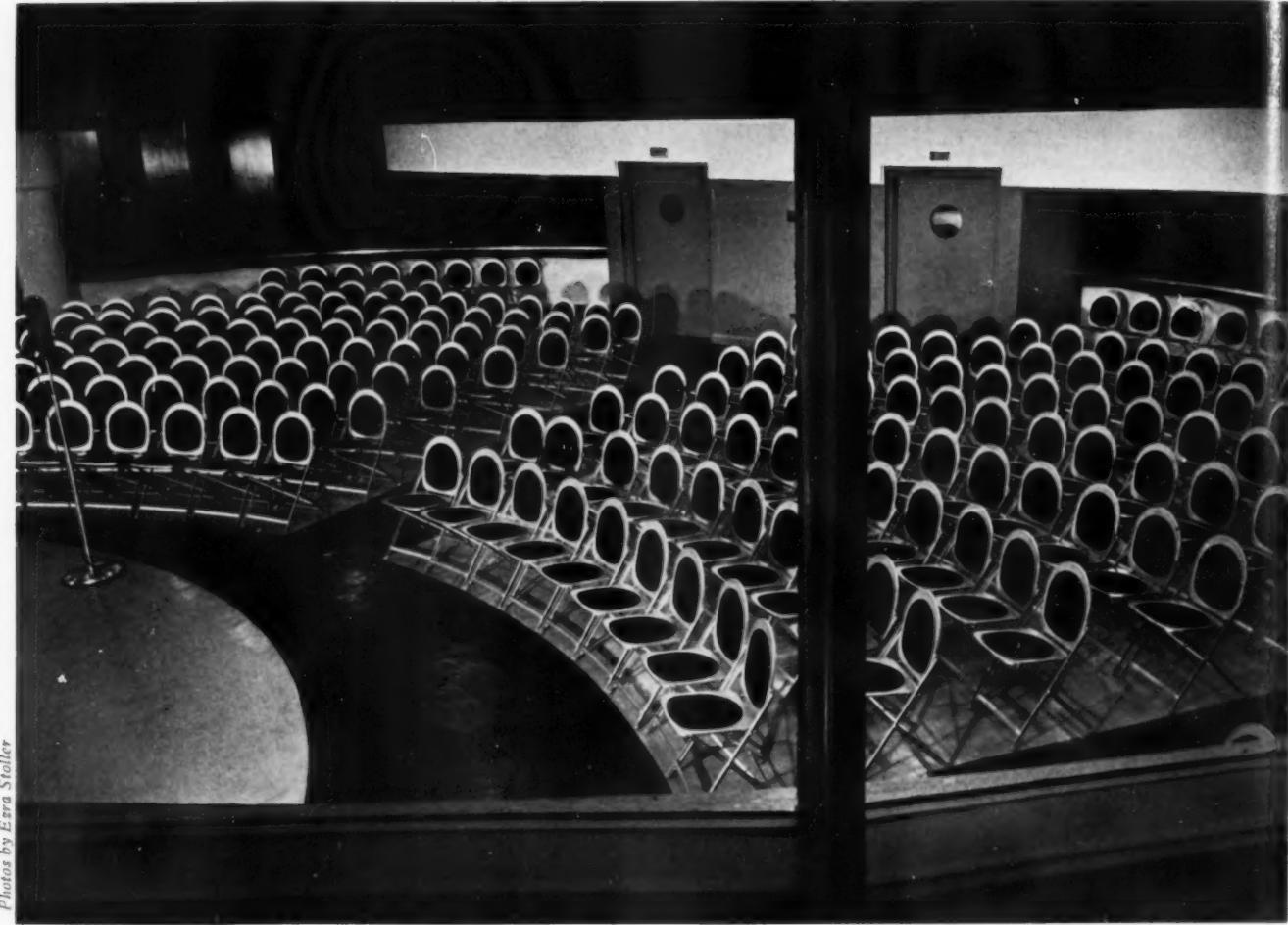


Ceiling lights on the first floor are counter-sunk flush with the surface. About 85% of the heat-radiating surface of these lights is within the plenum chamber; most of the heat generated by the lamps is carried off in the air-conditioning outflow, so that room temperature is not appreciably affected.

LOS ANGELES STORE



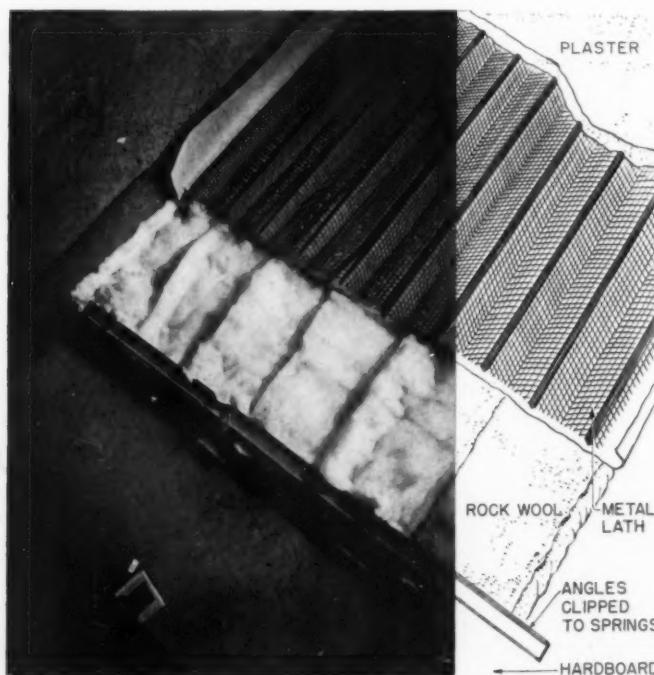
Elevator shafts are set in a shallow arc: this arrangement provides greater floor area in front of the elevators; and all cabs can be seen from any position within the arc at the same time. Shallow display cases are set into the wall between elevator doors.



Photos by Ezra Stoller

CIRCULAR BROADCASTING STUDIO IS DESIGNED FOR WMCA

LEON BARMACHE, Designer, and RENE BRUGNONI, Architect



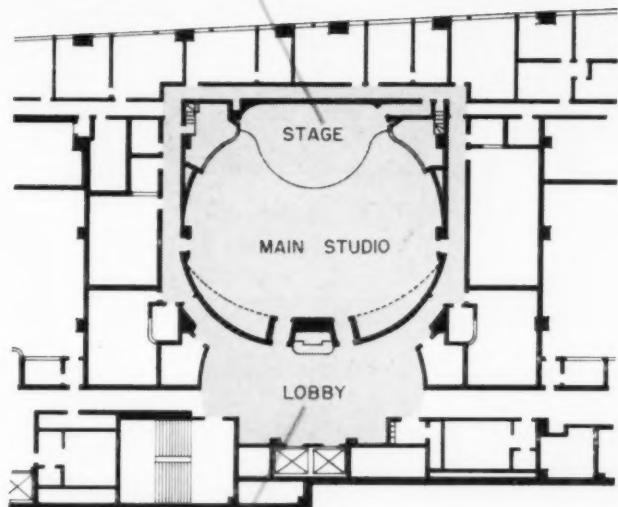
Detail of wall construction

THE MAIN auditorium of the new WMCA studios in New York City is the first circular room to be used as a source of radio programs. It was essential to prevent focusing of sound waves at some point in the room—like light reflected from a concave mirror: this was done by installing a 4-in. blanket of rock wool, covering it with perforated hardboard; the sound is absorbed as soon as it strikes the wall.

The problem of sound transmission was solved by suspending walls, floor, and ceiling from the structure by means of springs. These springs are resilient, and sounds originating inside or outside the studio do not pass through them; the springs are attached to blocks of wood encased in cement and insulated by felt pads.

Breaks in the ceiling and alcoves with acoustical rock-wool paneling aid in preventing echoes.*

*Jacobson & Co., Inc., New York City, were the acoustical engineers.





Photos by Hedrich-Blessing

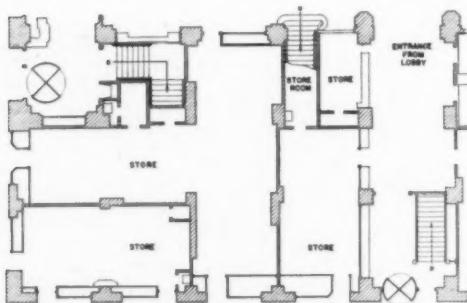
Bar in Sherman Hotel, Chicago. View looking toward street entrance, with stage platform out of picture to right

STORE GROUP REDESIGNED INTO BAR AND STAGE

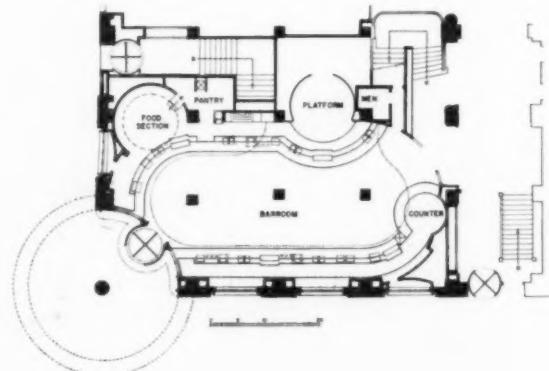
BY HOLABIRD & ROOT, Architects

THE STREET-FLOOR corner of Chicago's Sherman Hotel has been redesigned, with a bar and entertainment center replacing a group of old stores. In making the change it was necessary to provide an entrance with enough physical prominence to compete with other entrances along busy Randolph Street; a circular marquise extending out over the corner, and observable along the intersecting streets,

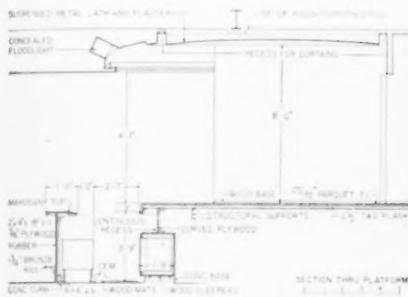
satisfies this need. Bar is accessible from lobby as well as from street, and lunches prepared in the hotel kitchen can be served conveniently in the barroom. Entertainers perform on a stage which is a little above bar level and observable from all parts of the room. The fixed columns have been a design restriction, but seem to offer little obstruction to circulation or sight lines to the stage.



Before



After



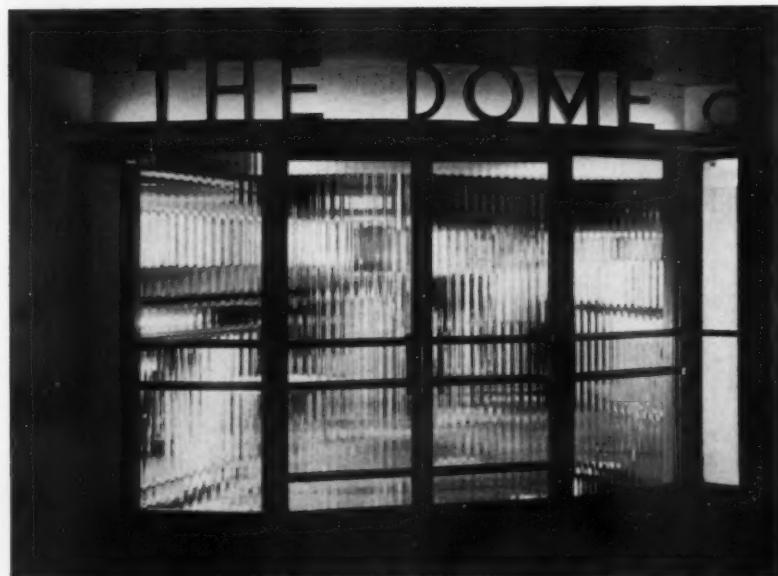
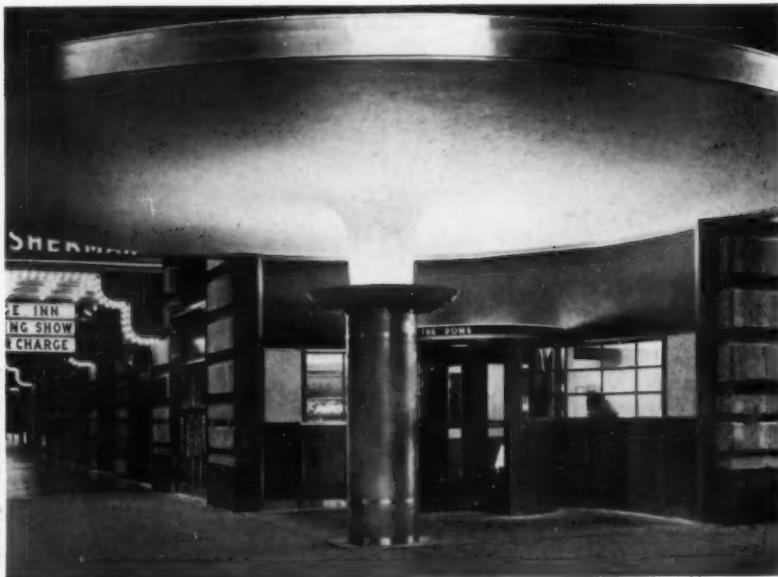
Section of stage



**View of the interior,
looking toward stage**

BAR IN CHICAGO

Photos by Hedrich-Blessing



TOP: Entrance from street.
CENTER: View, looking toward
lobby entrance. BOTTOM: En-
trance from lobby of hotel.

GLUED PLYWOOD RIGID-BENT TRUSSES USED IN GYM-AUDITORIUM

Photos by Jones Photo Co.



WALTER H. ROTHE, Architect

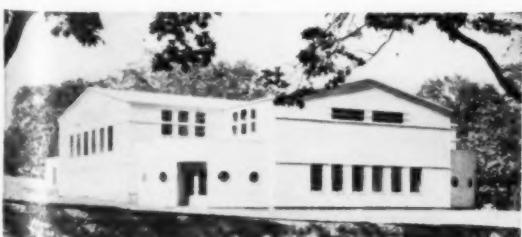
A GRADE-SCHOOL building combining auditorium and gymnasium was recently completed at White Salmon, Washington. It is a one-story structure composed of a large central unit and four adjoining wings. Its framework of glued, stress-covered, rigid-bent trusses is enclosed, walls and roof, with prefabricated panel units made almost entirely of Douglas fir plywood: 85% of the material used is plywood. Construction follows the principles worked out by the Forest Products Laboratory at Madison, Wisconsin. (See AR, 2/38, p. 48.)

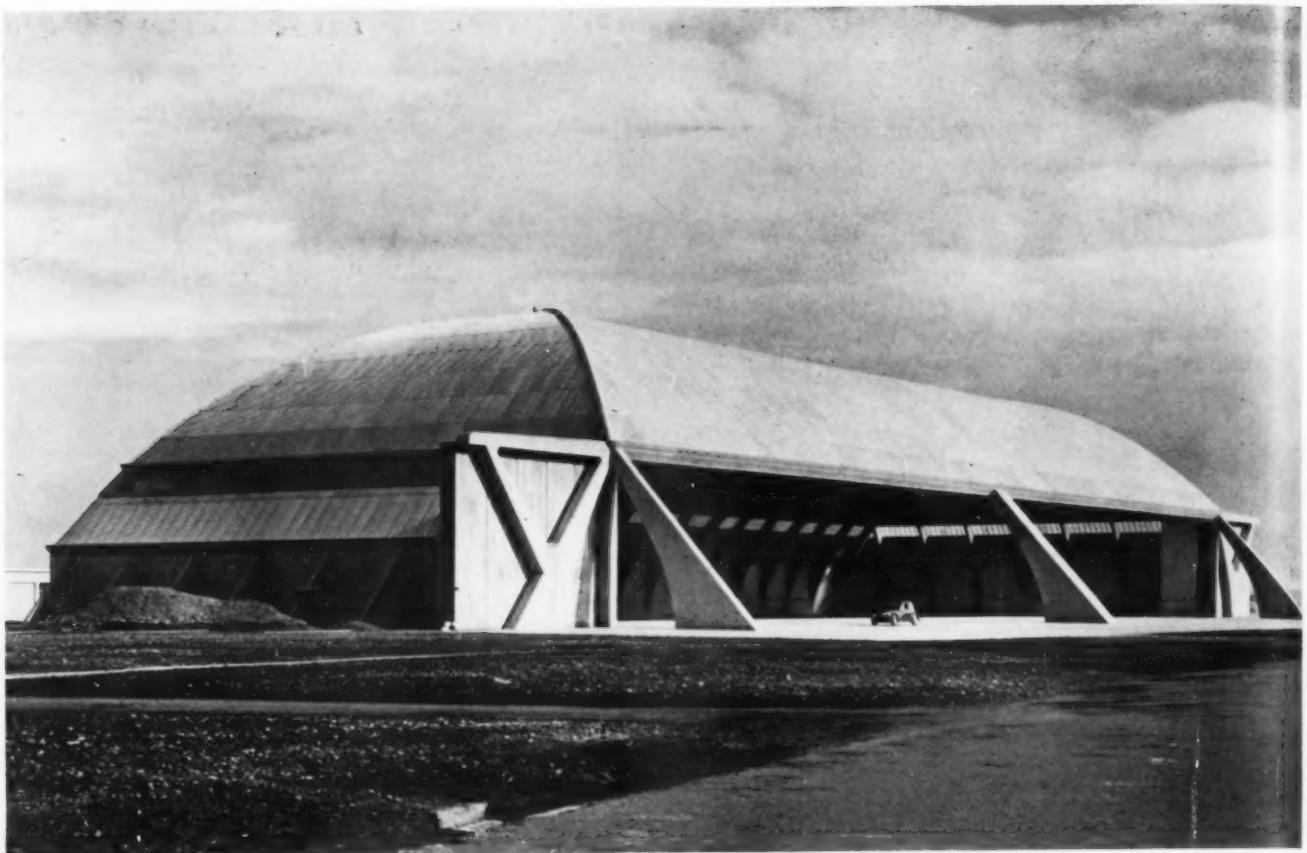
The framework is composed of 12 sets of rigid-bent arches of 43-ft. span and 2 sets of arches of 61-ft. span, all resting on concrete footings. Steel tie rods under the floor bind the arches at the footings to overcome outward thrust. No purflins or structural ties are used: the panel units alone enclose the frame. Trusses were constructed and tested at the site. Closure panels were fabricated in a factory 300 miles away.

Expanded vermiculite or rock-wool batts provide insulation and contribute to fire resistance. (Wall sections, rock-wool insulated, were tested by exposure to fire for 1½ hrs. without failure.) The insulation was placed in the units at the shop. Section joints are flush and invisible; splines have been inserted in the joints, glued in place, and rendered smooth with hand-electric sanders. Although the capacity of the heating plant was reduced by one-third from the specifications originally given, it has been determined that the lowest outside temperature will not require capacity firing.

Because of its glued construction, the building is quite rigid; some nails and bolts were used, but only for the purpose of applying pressure while the glue set. The building is comparable in construction to a stringed instrument; this may account for its acoustics, said to be remarkably efficient.*

* Super-Harbord plywood and self-bonding glue by I. F. Laucks Co. were used.





Airplane hangar near Rome, Italy. Width of entrance is 372 ft. Doors slide into a continuation of the girder.



View showing vault ribbing. Horizontal member near open side of hangar forms a lattice girder with the ribbing.

HANGAR PROVIDES CLEAR SPACE AND BOMB RESISTANCE

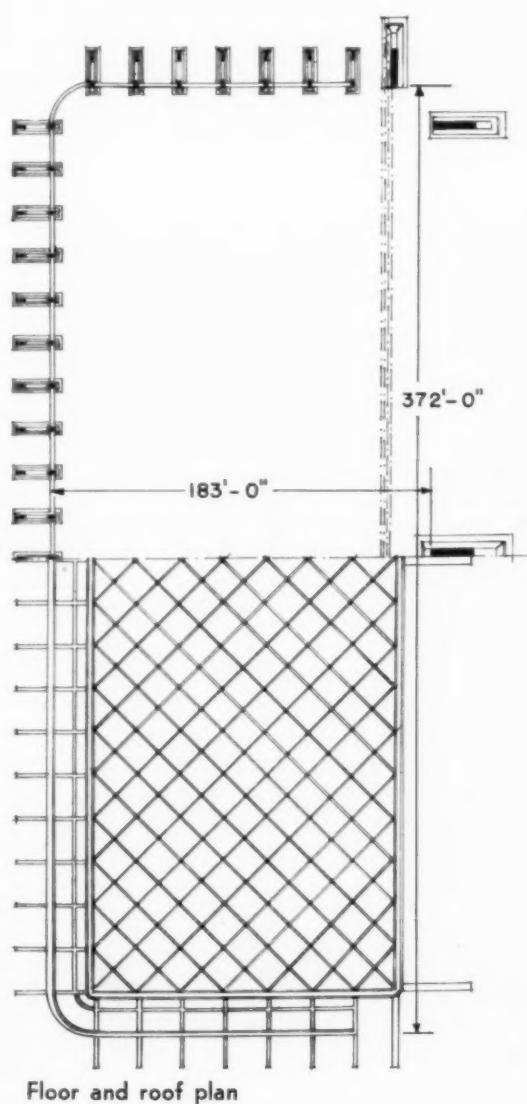
P. L. NERVI, Engineer

THIS STRUCTURE near Rome satisfies the essential requirements of hangar design: width of span for ever-lengthening wingspreads; and bomb-resistance. The entrance, spanning 372 ft., is obstructed only by the central pier; clear area inside the building is about 54,000 sq. ft. Bomb-hits anywhere except on the horizontal girders in front would probably cause only local damage.

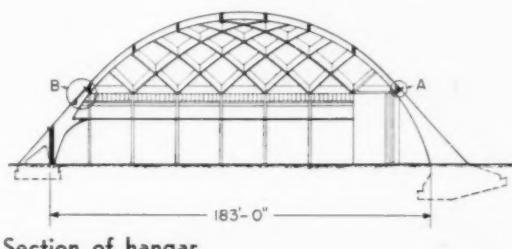
The bearing structure consists of a system of segmental ribs running at 45° to the axis of the hangar. At sides and rear the arches are supported on piers inclined at an angle which continues the cross-sectional curve of the roof; these carry the weight of the structure directly to the foundations. In front, the arch system and hori-

zontal girders bring the load to five larger piers at corners and center. The reticulated girder, hung from the structure at a height of 30 ft., supports the possibility of uneven loading as well as horizontal wind stress on the great doors and roof: these reactions are distributed to the frontal buttresses, bringing the system back into equilibrium. When open, the doors are supported on a continuation of the girder, which is, in turn, supported on either side by a strut joining one of the main piers.

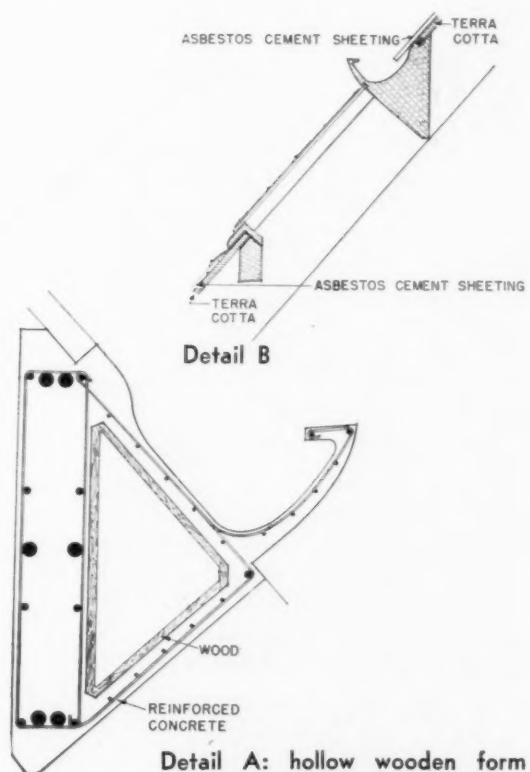
The concrete bearing structure is covered with terra cotta, reinforced with asbestos-cement sheeting. "Air cushions" in the squares formed by the vault-ribbing aid insulation.



Floor and roof plan



Section of hangar

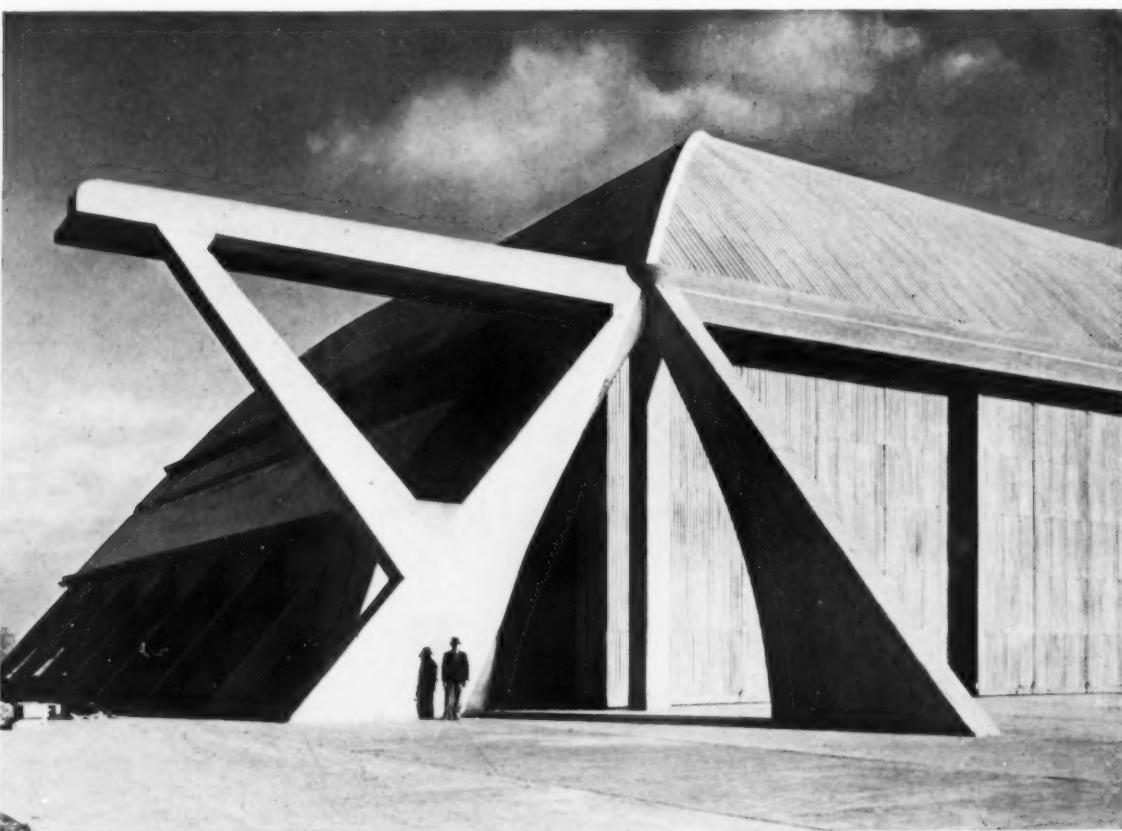


Detail B

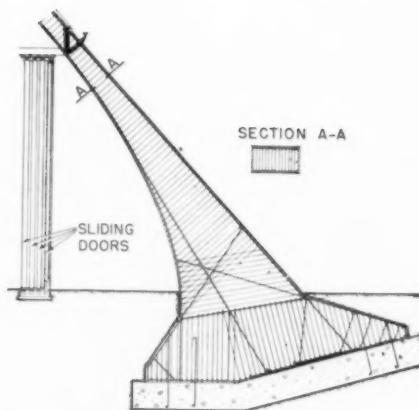
Detail A: hollow wooden form remains when concrete hardens, lightening the structure.

AIRPLANE HANGAR IN ROME

Photos by Vassari



Hangar doors slide into a continuation of the girder, which is supported by a strut joined to one of the main piers.



Section of frontal pier

PROPOSED BUILDINGS



CIRCULAR OFFICE BUILDING PROPOSED FOR LARGE CORPORATION

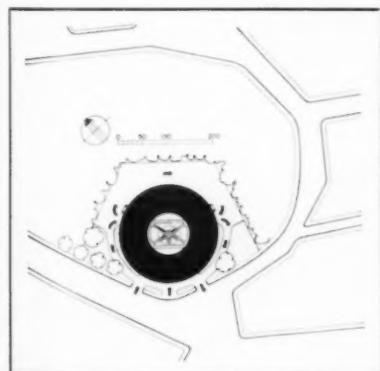
W. F. RUCK, Architect, and ZARA WITKIN, Civil Engineer

THIS PROPOSED "office building for a large corporation" was designed for a specific Los Angeles site open to view on all sides.

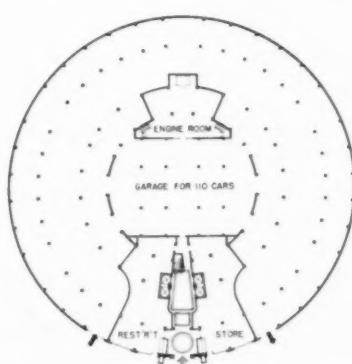
Since, geometrically, the perimeter of a circle is shortest, relative to enclosed space, there is a minimum of wall and corridor area. It becomes easier to space elevators, stairs, and fire escapes uniformly to give convenient access from all parts of the building. Opera-

tional systems—plumbing, heating, ventilation, lighting, etc.—can be more efficiently laid out: there are no dead ends and waste spaces as in the "L", "U" or "E" types. Further, this is the strongest self-bracing structural shape against wind, earthquake and other lateral stresses.

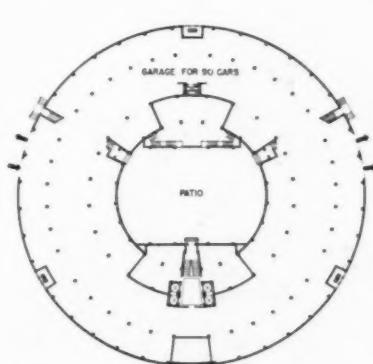
Identical exterior panels may be used all around the building. Construction plans include a scheme for pre-casting entire wall sections.



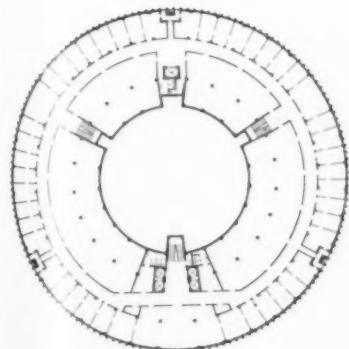
Plot plan



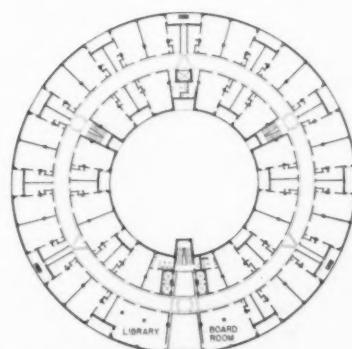
Ground floor



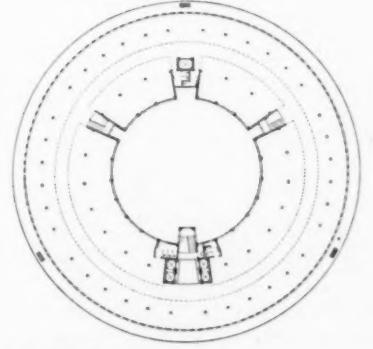
Mezzanine



First and second floors



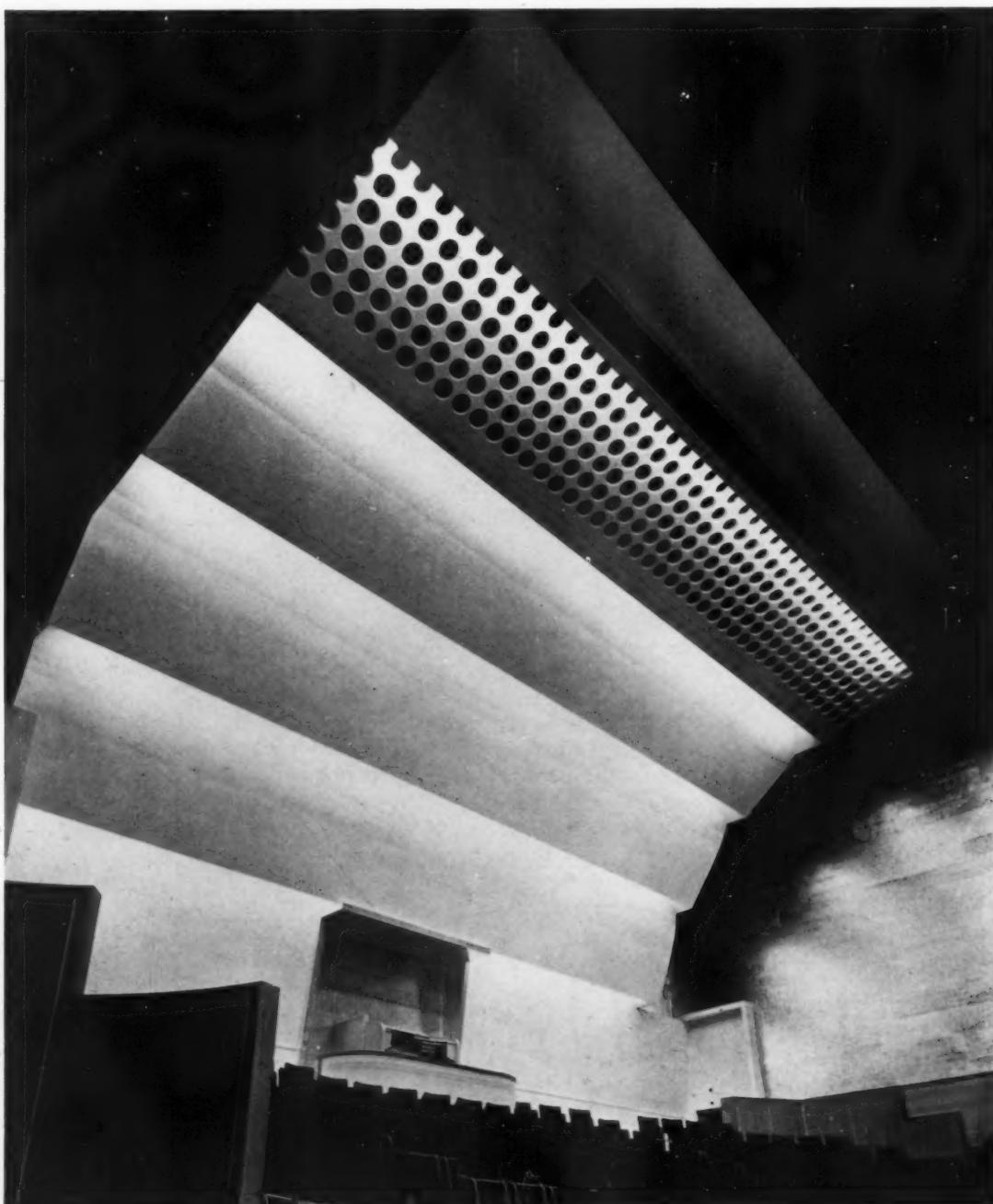
Third floor



Fourth floor

DESIGN DETAILS

Illustrations courtesy "The Architect and Building News"

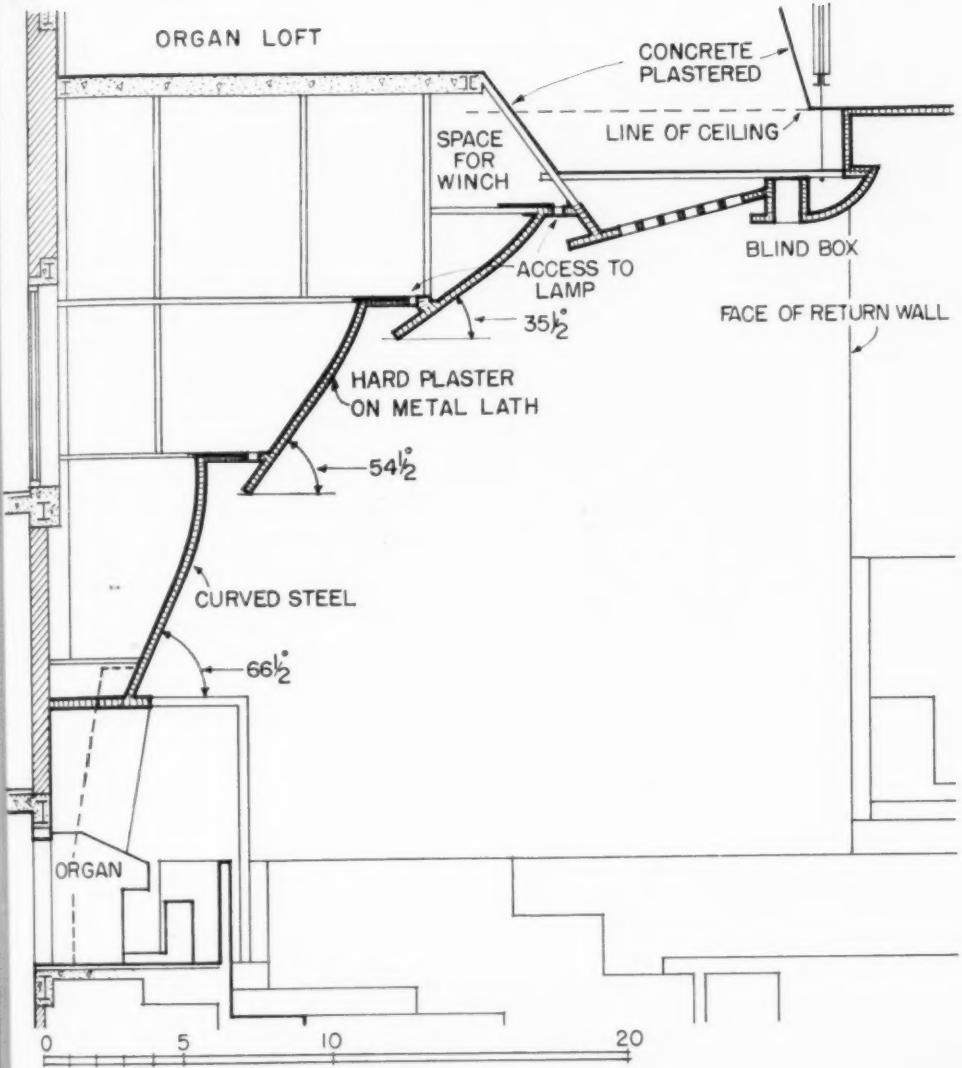


ACOUSTICAL HOOD FOR MULTIPLE-USE AUDITORIUM E. D. LYONS and L. ISRAEL, Architects

A MUNICIPAL AUDITORIUM recently opened in Wolverhampton, England, is to be used for organ, choral, and orchestral work, and by soloists and speakers. An acoustical hood placed over the proscenium has been designed to control the different reverberation-characteristics common to these different uses.

The hood is a light steel frame entirely suspended from the roof steel. It is composed of six planes at various inclined angles, with the upper part of each plane slightly concave

to broaden the sound waves. The openings in the two upper veins carry sound from the organ chamber behind and above the sounding board. In order to amplify the speaker's voice, "soft speaker cones" have been incorporated in the hood as well as in the auditorium ceiling and balcony soffits; these are controlled from a room at the rear of the balcony. The beams over the balconies are used acoustically to prevent "fluttering." There are floodlighting troughs in each plane.

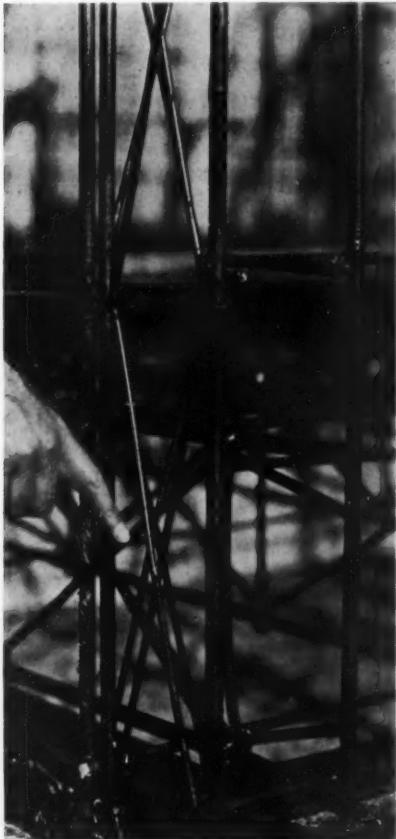
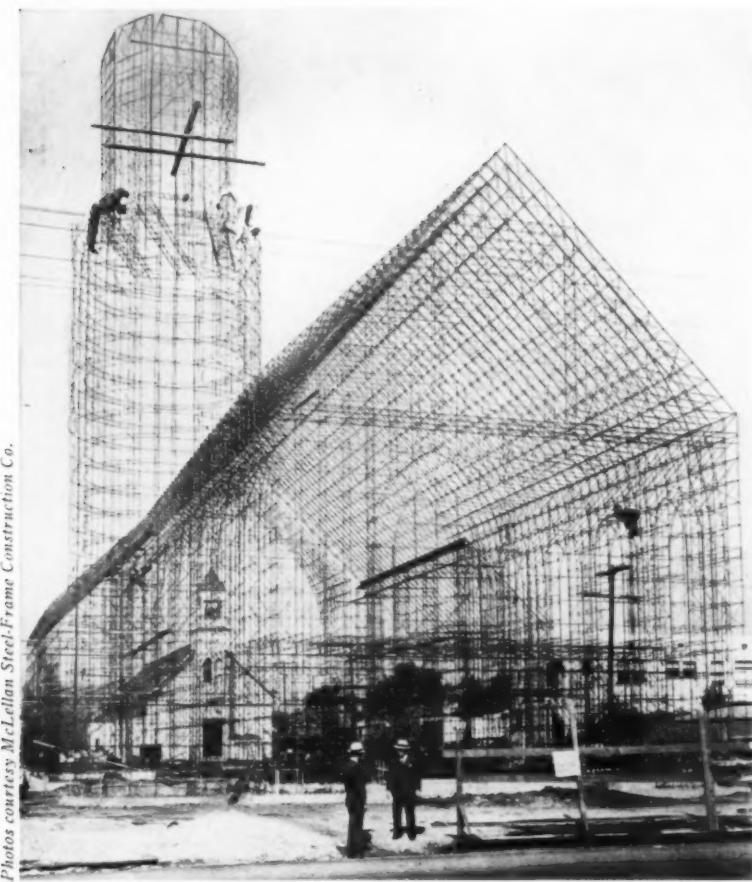


Section of acoustical hood



View of auditorium interior. Note ceiling beams over balcony; these aid in preventing fluttering.

NEW STRUCTURAL SYSTEMS



Angle-irons holding wall panels are welded to anchor bolts set into the concrete foundation.

Church in Southern California Built of Welded Steel Rods

THE McLELLAN steel-frame construction, a new system consisting entirely of small, round, steel rods, one-eighth to five-eighths of an inch in diameter, has recently been developed in Southern California. The structural frame is a network of rods, welded—walls, roof, and floor joists—into a single unit. All joints are arc-welded, and tests are said to prove that these joints are stronger than the members joined.

The completed framework resembles two birdcages, one slightly smaller than and within the other, the two laced together with trusslike cross-bracing. Air space between exterior and interior wall surfaces acts as heat insulation.

The structure is exceptionally strong and light, its weight only about one-third that of a corresponding wooden frame. It is designed as a "compensating" framework: all loads are widely distributed over the structure, and the design takes advantage of the superior strength of steel in tension.

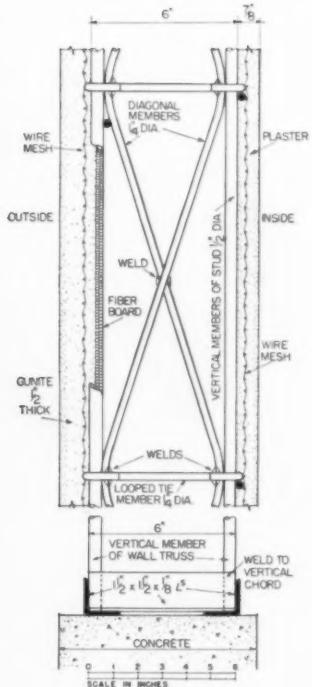
Sidewalls are prefabricated in panels of single-story height. These panels consist of vertical studs, diagonally braced and held in position by horizontal tie rods.

The studs are composed of two vertical chord members, braced to form a continuous truss and stiffened with horizontal cross rods. Diagonal cross-bracing in any one stud is a continuous rod, bent in sawtooth fashion, extending from top to bottom of the stud, and bound, at the junctures with the vertical chords, by horizontal cross rods. Horizontal tie rods between studs are continuous across the panel. The diagonal cross-bracing within panels is continuous from one corner to the other and is also bent sawtooth fashion for stiffening. Thus, each panel, in itself, is a truss.

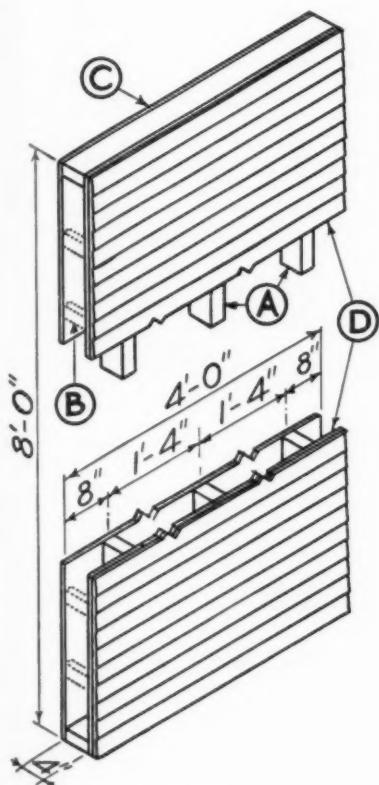
Floor and ceiling joists are identical and are similar in construction to the wall studs.

Panels are joined together, to form the walls, by sleeve connections encircling protruding ends of rods; these sleeve joints are electric-welded after panels have been set in place. Bottoms of wall panels are welded to angle-irons resting on foundation walls; the angle-irons, in turn, are welded to anchor bolts set into the foundation.

When the framework has been completed, both surfaces are covered with metal lath stitched to the frame. Concrete is pneumatically applied to the exterior wall surfaces, plaster or other appropriate finish to the interior. Floors are laid over an insulation of fireproof material. The structure is resistant to fires, earthquakes, and termites.



NEW SERVICES



Typical wall specimen

A, three wood studs (2 x 4 in.); B, wood blocks to support the edges of the faces, optional with sponsor; C, inside face (lath and plaster); D, outside face (wood sheathing, paper, and lap siding).

PRICE OF LOW-COST HOUSE CONSTRUCTIONS*

Element	Max. price per sq. ft.
Wall and load-bearing partitions; including weatherproofing on outside face of the wall and the finish on inside face of the wall and on both faces of the partition.....	\$0.60
Partition, nonload-bearing; including finish on both faces.....	.35
Floor; including finish floor on upper face and ceiling (if any) on lower face.....	.75
Roof; including weatherproofing on upper face and ceiling (if any) on lower face.....	.60

*Prices as of July 1937 of each element, as used in a house delivered in Washington, D. C.; higher-priced constructions will not be included in the program.

Research Program into Low-Cost Constructions Announced

A REPORT recently issued by the Bureau of Standards describes the earliest results of a program of research into the properties of various building materials and their suitability for low-cost housing. This program was undertaken last year, under a grant of Congress, by a staff committee of the Bureau. (See AR, 10/38, p. 34.)

Until quite recently, tests on the structural qualities of houses have been largely of the trial-and-error sort. Inefficient constructions and constructions unnecessarily strong or expensive have been replaced only very gradually. To speed up the industrialization of housing, it has become essential to employ research methods common to the more advanced industries; and here there were several alternatives.

First, house structural systems in actual service might be observed over a period of years; but this would take a long time and the information obtained would be relatively indefinite. More precise results could be obtained by applying known loads to complete houses and then measuring their effect. But this, too, would require much time and would, in addition, be very expensive. Moreover, only the weakest element of a particular house could be tested by this method: for instance, if loads were applied to the second floor of a house to determine its strength, and if the walls crushed before the maximum load for the floor was applied, another house with stronger walls would have to be tested.

To the members of the Bureau committee it has seemed more practicable to test "elements" of a finished house—floors, walls, roofs, etc. Results of such tests will probably approximate more closely to those obtained on a complete house than would the results of tests on the separate materials of which the house was fabricated. This simplification and enlargement of the "building unit", if only for testing, is symptomatic of increasing industrialization in the building industry.

The Bureau has asked for specimens, which it has agreed to test without charge. An attempt will be made, in this way, to coordinate the experience of organizations, archi-

tects, engineers, and other individuals, so that it will be most useful to those concerned with the design or fabrication of houses, particularly low-cost houses.

So that the results of various tests may be as comparable—and hence as useful—as possible, the Bureau has formulated a number of rules for the submission of specimens for testing. Specimens should not be fabricated until the Bureau has agreed to include the construction in the program.*

For any or all of the four elements of a house—wall, partition, floor, and roof—one or more low-cost constructions may be chosen. Dimensioned drawings and a complete description of each element must be submitted; all available information which will identify the materials or units in the construction should be included. Drawings and information will be used to determine whether or not the construction will be used in the research program. (Specimens should not exceed in price the values given in the table in the left-hand margins.)

Specimens should be as large as practicable so that the effect of variations in material and workmanship may be minimized, and so that the results obtained may be representative of constructions in actual houses. Obviously, the size of specimens is limited by the size of testing machines available. The following sizes have been decided upon:

Wall: 15 specimens: height, 8 ft.; nominal width, 4 ft.† (480 sq. ft.). 3 specimens: height, 8 ft.; nominal width, 8 ft. (192 sq. ft.). Total area, 672 sq. ft.

Partition: 3 specimens: height, 8 ft.; nominal width, 4 ft. (480 sq. ft.)

Floor: 6 specimens: length, 12 ft. 6 in.; nominal width, 4 ft. (300 sq. ft.)

Roof: 3 specimens: length, 14 ft. 6 in.; nominal width, 4 ft. (174 sq. ft.)

Further information on this program of research may be found in Report BMS2 by Herbert L. Whittemore and Ambrose H. Stang. It is for sale by the Superintendent of Documents, Washington, D. C., at 10 cents.

*The Bureau of Standards will test only "elements" of completed houses; an element is defined as a "portion of the completed house ready for occupancy having one primary function, for example, a floor or wall." "This Bureau does not test building units or members such as brick, concrete block, open bar joists, etc., for the public, if such tests can be made in the materials-testing laboratories of commercial organizations and technical schools."

†The greatest width which can be tested is 6 ft.

WITH THE PROFESSION

Prize Competition for Design of Theater Announced

FOLLOWING CLOSE ON the heels of the recent Wheaton and Goucher College contests, another competition for the design of a college building—"A Festival Theater and Fine Arts Building"—begins with the publication of this notice in ARCHITECTURAL RECORD. The awards will total \$1,500: first prize, \$500; second prize, \$300; third prize, \$200; and five citations of \$100 each. The competition is sponsored by The American National Theater and Fine Arts Academy, assisted by the Museum of Modern Art.

The competition problem is the design of a festival theater, with all the facilities necessary for dramatic productions, opera, motion pictures, etc.; in addition, the building is to house the activities of a college Fine Arts Department. There is no contract to be awarded; but, to make the problem as specific as possible, the site for the project will be considered to be a portion of the campus of the College of William and Mary.

Any architect, designer, engineer, or draftsman residing in the United States, except employees of ARCHITECTURAL RECORD or the Museum of Modern Art, is eligible to compete. The sponsors have invited five architects to enter the competition, guaranteeing them a remuneration of \$400 each. These architects are Goodwin & Stone, New York, N. Y.; Walter Gropius, Cambridge, Mass.; Michael Hare, New York, N. Y.; Harrison & Fouilhoux, New York, N. Y.; Richard Neutra, Los Angeles, Calif. But all designs will be judged at the same time and will remain anonymous until after final judgment.

The competition closes January 31, 1939. The names of the jurors—three architects, a theater expert, and an educator associated with the Fine Arts—will be announced February 14, 1939, at which time the judgments will begin. Prize-winning and other selected designs will be published in ARCHITECTURAL RECORD.

Entry blanks can be obtained from the professional adviser, Kenneth K. Stowell, AIA, care of Architectural Record, 119 West 40 Street, New York, N. Y.



S. Fraser McIntosh

Myron T. Hill

Waldron Faulkner

Winners of \$200,000 Prize Competition Announced

THE WINNERS of the \$200,000 prize competition of the James F. Lincoln Arc Welding Foundation have recently been announced. This competition, begun early in 1937, was judged by 31 engineering authorities from leading universities and colleges throughout the country. Thousands of papers were submitted and subjects of study in the 44 divisions of the Program represented almost every section of industry. The Central Committee of the Jury of Award, after discounting some very enthusiastic claims, found that savings to industry by arc welding, estimated by authors of papers, amounted to \$1,600,000,000.

Awards of \$712, \$508, \$305, \$203, and \$152 were received by designers of steel-framed houses. These, the first five awards in the house division of the Program, went respectively to S. Fraser McIntosh, presi-

dent, Insulated Steelbilt Structures, Inc., Amsterdam, N. Y.; Myron T. Hill, architect, Toledo, Ohio; Waldron Faulkner, architect, Washington, D. C.; E. W. Burgess, engineer, Milwaukee, Wis.; E. H. McClintock, designer, and T. K. O'Connor, fabricator, Springfield, Mass.

The paper by Mr. McIntosh, "Steel-Framed Dwellings", features a system of construction using shop-fabricated welded steel units. Myron T. Hill describes an attempt to design a logical steel frame. Waldron Faulkner describes and gives detail plans for construction of a welded steel-frame house. Mr. Burgess' paper, "Steel Frame Structures", describes a pressed thin steel plate shaped into ribs to be used as floor.

In brief form, these and other papers are available from the James F. Lincoln Arc Welding Foundation, Cleveland, Ohio.

Exhibition of Post-War Architecture to Travel Through U. S.

THE "NATIONAL EXHIBITION of Representative Post-War Architecture", the first of its kind ever to travel throughout America, will be seen, during the coming year, in more than a score of cities all over the country.

The Special Exhibits Committee and the Committee on Education of the American Institute of Architects have selected and assembled the material, and the American Federation of Arts will exhibit it.

The exhibit consists of photographs, plans, notes, and details of 150 buildings; an attempt was made to choose "representative" buildings, irrespective of style or architect.

All places on the exhibition circuit have not been definitely decided upon, but the following are scheduled: National Collection of Fine Arts, Washington, D. C.; Harvard University; Massachusetts Institute of Technology; Baltimore Museum of Art; New York City; Yale University; Princeton University; University of Pennsylvania; Addison Gallery, Andover; Montclair; Chicago; Memphis; Detroit; Beloit College; Kansas State; University of Minnesota; other Western cities are to be announced later.

Headquarters of the American Federation of Arts are in the Barr Building, Washington, D. C.

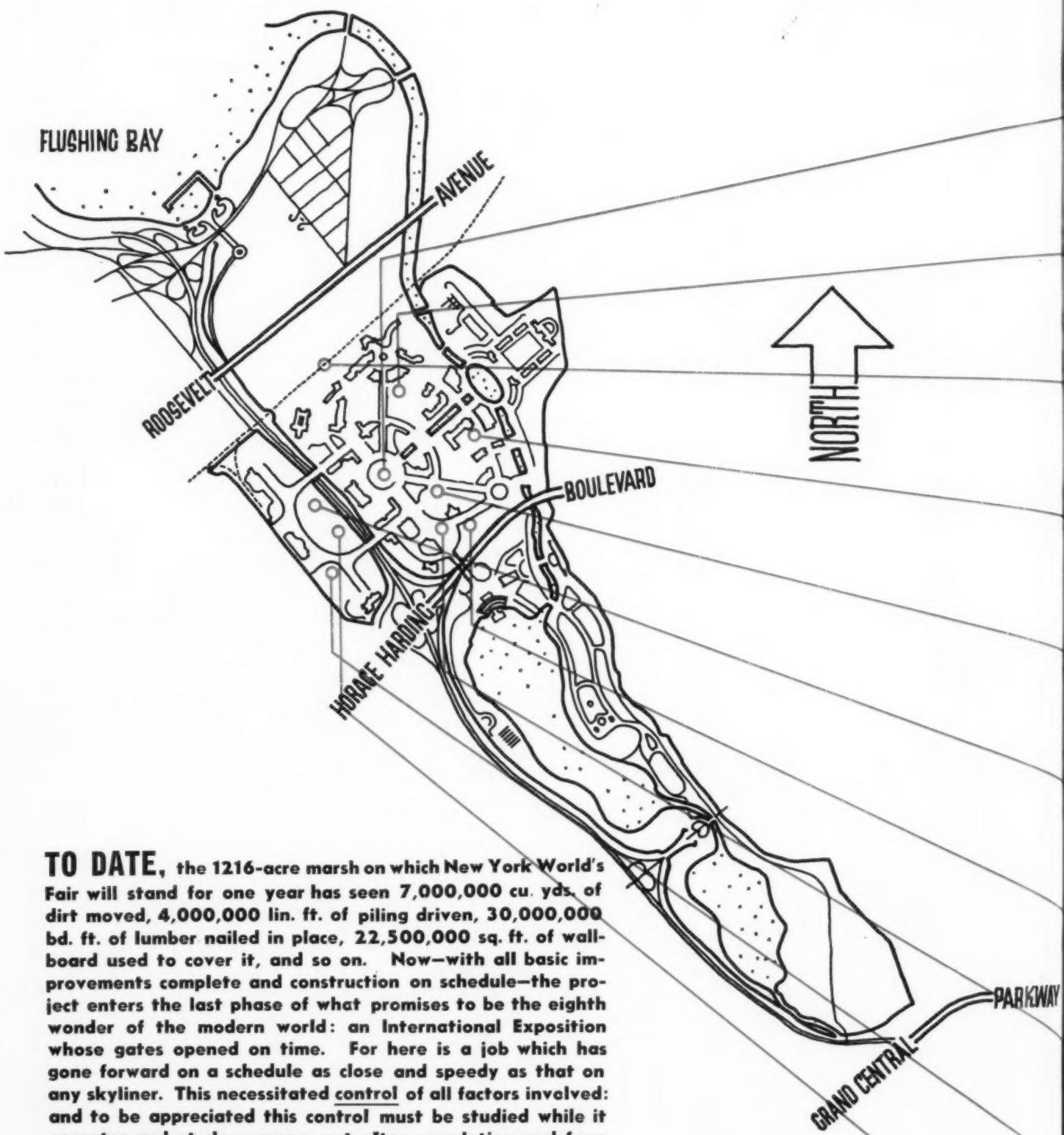
DESIGN TRENDS



ARCHITECTURAL
RECORD

REGISTERED TRADE
AMERICAN ARCHITECT AND ARCHITECTURE

PREVIEW NE



TO DATE, the 1216-acre marsh on which New York World's Fair will stand for one year has seen 7,000,000 cu. yds. of dirt moved, 4,000,000 lin. ft. of piling driven, 30,000,000 bd. ft. of lumber nailed in place, 22,500,000 sq. ft. of wallboard used to cover it, and so on. Now—with all basic improvements complete and construction on schedule—the project enters the last phase of what promises to be the eighth wonder of the modern world: an International Exposition whose gates opened on time. For here is a job which has gone forward on a schedule as close and speedy as that on any skyliner. This necessitated control of all factors involved: and to be appreciated this control must be studied while it operates and at close range, not after completion and from the outside.

But expositions are scarce and—like lightning—seldom strike twice in the same spot; consequently, the average architect seldom designs one. Thus, ARCHITECTURAL RECORD here previews not the Fair as a whole but only some of those buildings, systems, and equipments which point to higher production standards, and which have application to many building types other than exposition structures.

All photographs, except where noted, were specially taken for ARCHITECTURAL RECORD by Jean St. Tomas.

NEW YORK WORLD'S FAIR - - - 1939

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1. TRYTON, PERISPHERE, HELICLINE

HARRISON and FOUILHOUX, Architects

HENRY DREYFUSS, Designer

MORAN, PROCTOR & FREEMAN, Foundation Engineers

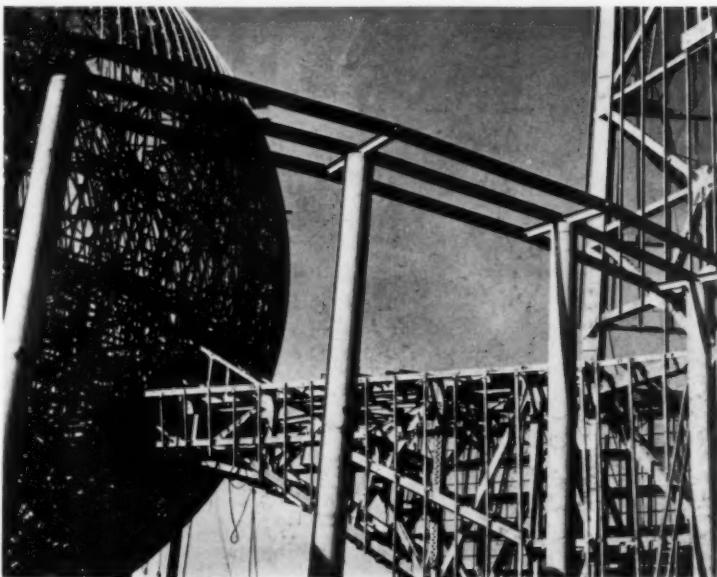
SHORTRIDGE HARDESTY, Structural Engineer

1,035 SKETCHES were discarded before the present design for the Fair's Theme Center was finally accepted; and the problem had just begun. The design process was difficult, since no precedence existed for such structures, and an entire series of tests had to be carried on to determine the characteristics of such structures under loads, wind pressure, etc. Nor were fabrication and erection problems any simpler: extraordinary standards of precision had to be maintained throughout. This led to the development of a novel rigging set-up; of cantilevered scaffolding outside and rotating scaffolding inside the Perisphere; of a new material to surface the structures; etc. Yet, in spite of its complexity, the entire job is on schedule, with only one minor injury—"a crushed toe-nail".

As finally constructed, the Perisphere rests on a circle of 528 piles driven into sand about 100 ft. below the surface: these piles are capped with a concrete ring. From this foundation eight columns support a huge ring girder 72 ft. in diameter; and from this girder spring 32 meridian trusses similar to the lines of longitude on a globe. These in turn are joined together by 15 horizontal trusses. Smaller purlins complete the assemblage. The Trylon and Helicline are of more usual design and presented no such problems as the Perisphere.



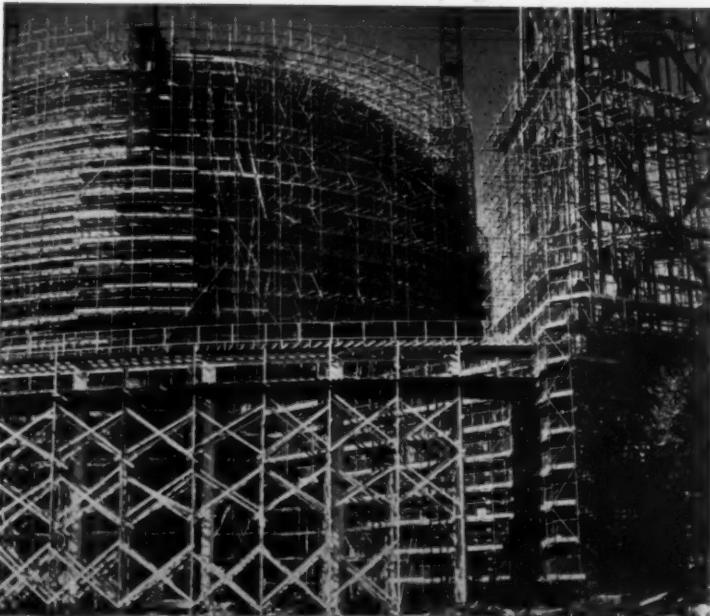
ERCTION required specially-designed rigging system



FRAMING: 7,125 pieces of shop-fitted steel in proper place



Two giant escalators (lower left) spill 8,000 persons per hour onto two circular platforms (center); moving in opposite directions, these platforms make complete circuit in 5½ min., where barrier deflects traffic onto Helicline (left, center).



SCAFFOLDING so complex that separate bids were taken on special scaffolding design.

PERISPHERE



Drawing by Kantsky; photographed by Louis Dreyfus

Sketch showing relation of spectator to Perisphere's huge diorama of Town of Tomorrow.

DRAMATIZATION of the Perisphere's thematic display, "Building the World of Tomorrow", was the task of designer Henry Dreyfuss. While the accepted design for the Perisphere is essentially that for a theater—with a slowly moving audience in the center and "show going on above it, below it, and all around it"—the design involves many problems in traffic, display, lighting, acoustics, etc., not found in the usual theater. The central task of the designer was therefore to integrate a number of specialized fields into a theater for which there was no single precedent.

The central display—a scale model of a city which incorporates current standards of town and regional planning—will occupy the bottom of the sphere; by means of the diorama technique, it will merge into the walls of the sphere. Lighting effects—not only in the model itself but on the entire inner surface of the sphere—will then reproduce a 24-hour day—clouds, stars, sunrise, and sunset—compressed into 5½-min. cycles. Spectators on the rotating platforms will thus get the illusion of moving freely through space. Elaborate sound effects are also planned.



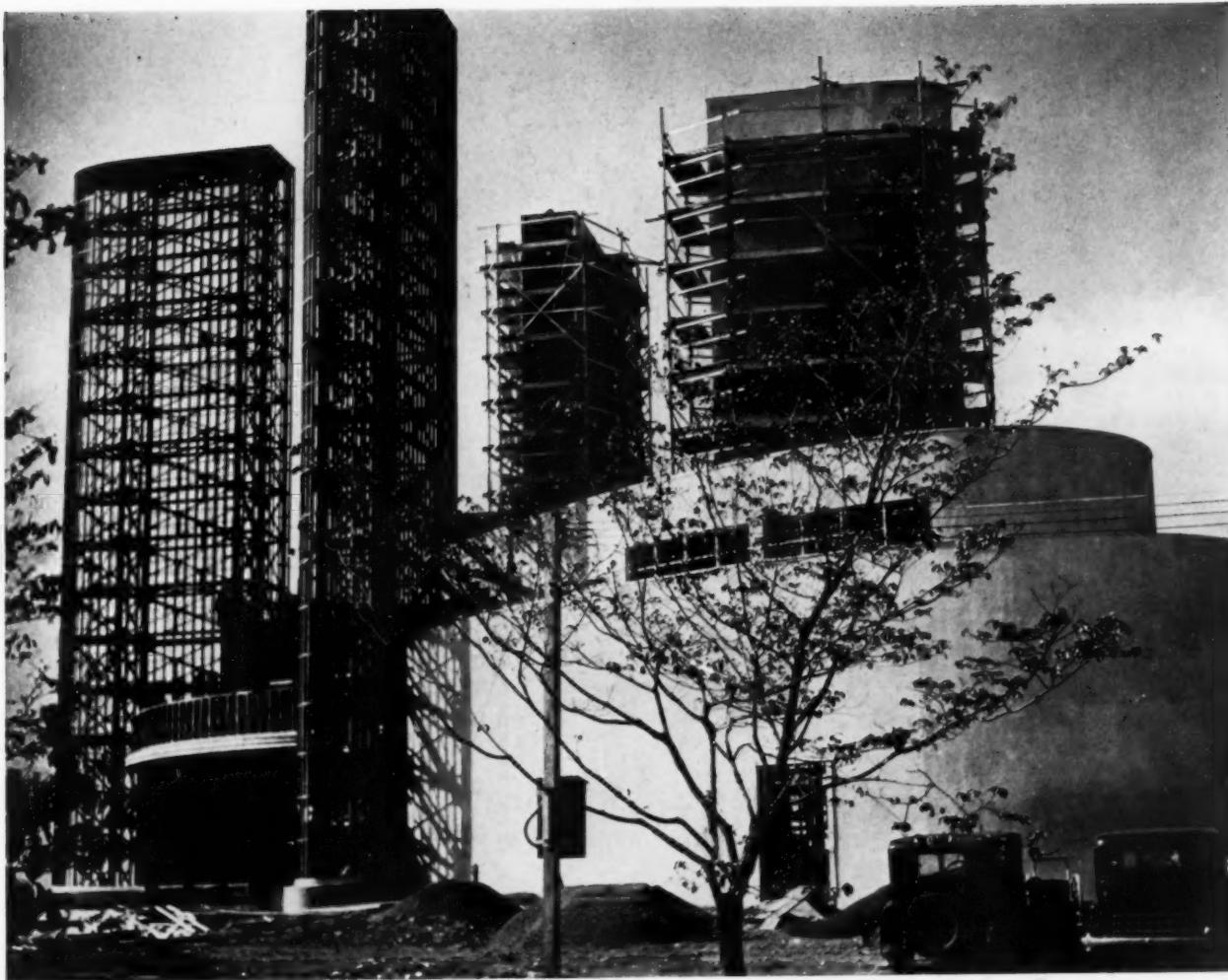
Preliminary model: "Democracy"



Tomorrow Town's Democracy's retail shops

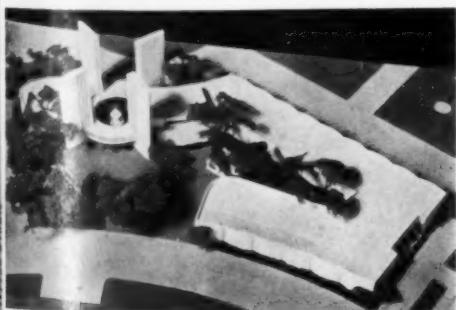


Democracy's sports center



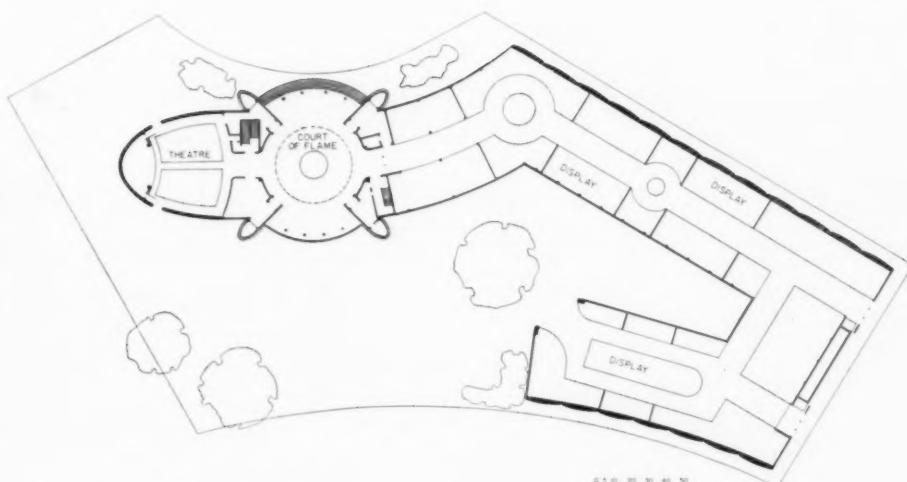
2. GAS EXHIBITS, INC.

SPONSORED jointly by 169 gas companies in America and Canada, this is a single-level structure for display of gas appliances for cooking, heating, and air conditioning. Chief external feature is the circular "Court of Flame", flanked by four pylons, in which a (gas) flame will burn continuously. One end of the structure is occupied by a 350-seat theater for demonstration purposes.



Model

SKIDMORE & OWINGS, Architects
JOHN MOSS, Associate

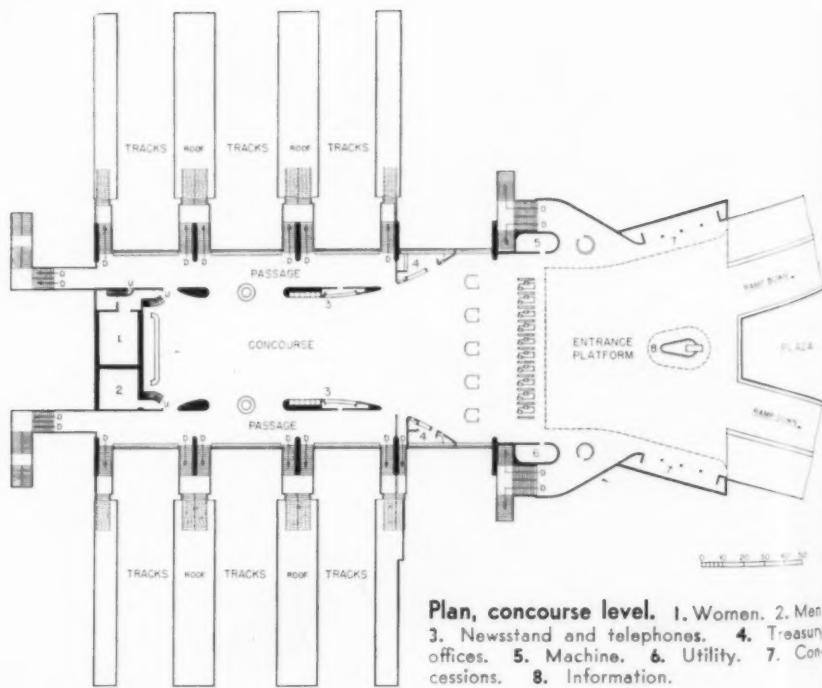


Plan



3. LONG ISLAND R. R. STATION

FAIR CONSTRUCTION DEPARTMENT, Designers

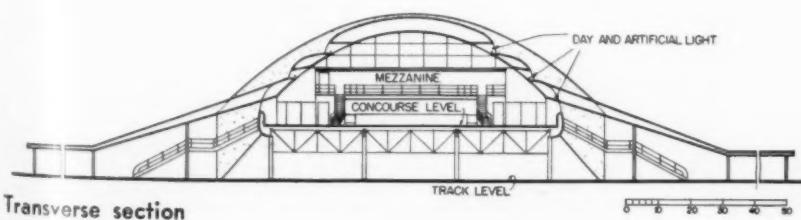
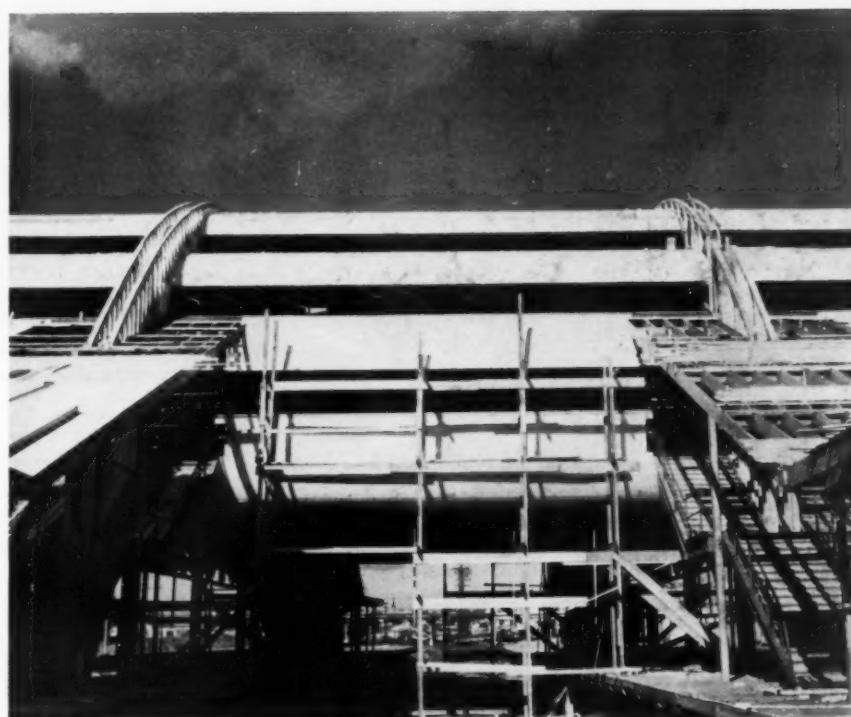
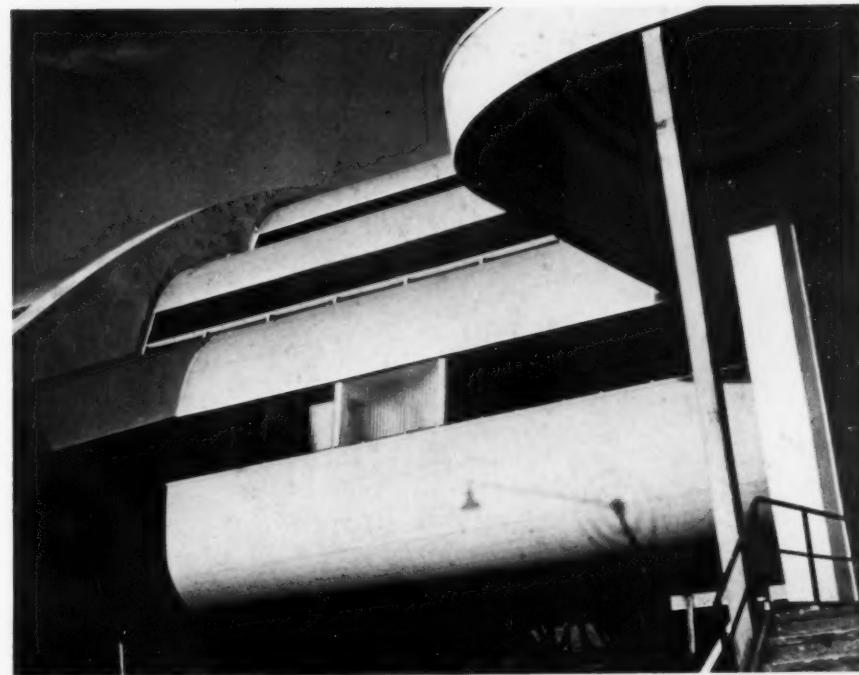


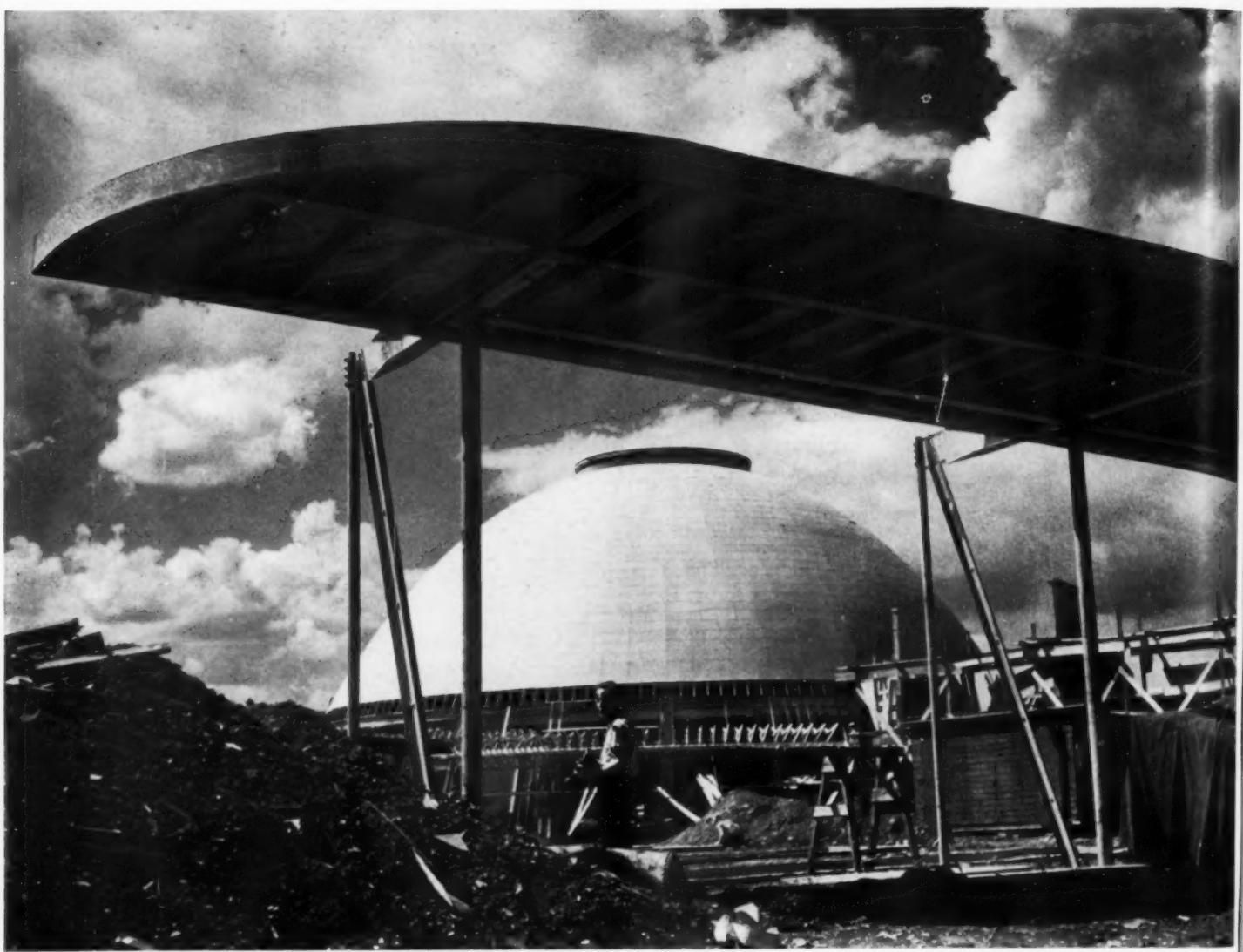
Plan, concourse level. 1. Women. 2. Men. 3. Newsstand and telephones. 4. Treasury offices. 5. Machine. 6. Utility. 7. Concessions. 8. Information.

IN BOTH PLAN and construction, the Long Island Railroad Station is one of the Fair's most notable structures. Although frankly temporary in character (and consequently not fireproof in construction), it indicates new standards for a common design problem—that of the busy suburban station. Lineal descendant of the old "covered" bridge, the station is actually a wood-and-steel bridge carried by five transverse (rather than lateral) arch trusses. This basic concept yields not only an economical plan and construction, but also an appropriate esthetic quality. Thus certain elements even look like trains (top, right) without in any sense being representational.

Although the station is essentially steel-framed, there is a wide and novel use of wood. With only the trusses and end walls stuccoed, the rest of the shell is wood-sheathed and canvas covered. In the continuous clerestory fenestration, windows and window frames have been eliminated; the corrugated glass strips thus become an integral part of the envelope. The clerestories are also designed so as to serve as source of both natural and artificial light (section, below).

Location of the station is fortunate, from the standpoint of visitors; ramps from the concourse level give directly into one of the Fair's secondary plazas; and the station is closely flanked by exhibit buildings so that the visitor finds himself inside the Fair immediately upon leaving the station.





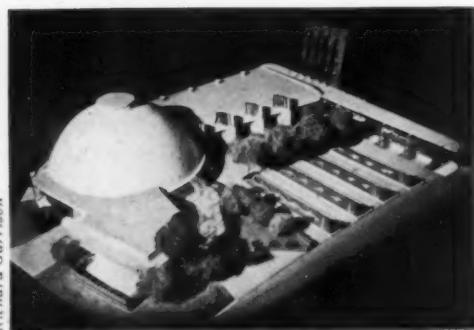
4. DISTILLED SPIRITS, INC.

MORRIS B. SANDERS, Architect

ROSS-FRANKEL, INC., and

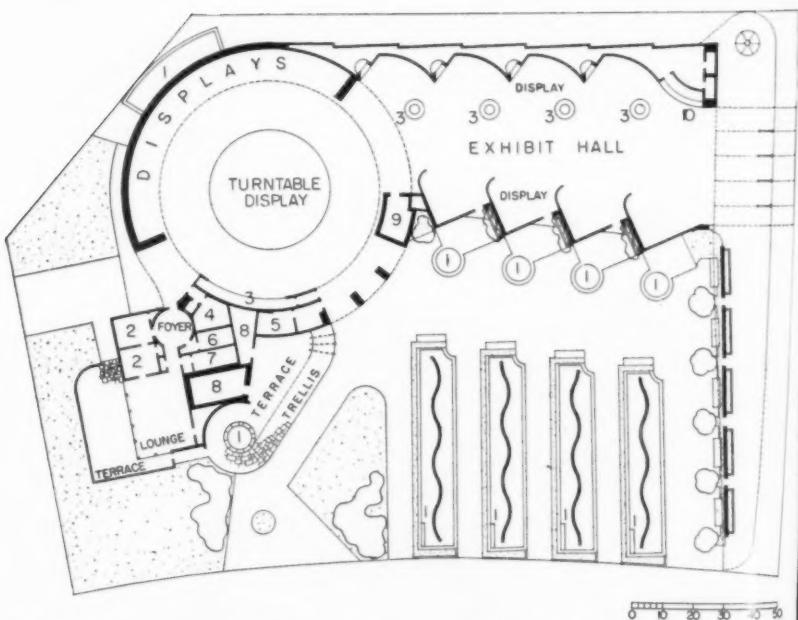
MORRIS B. SANDERS, Co-designers

Richard Garrison



Model

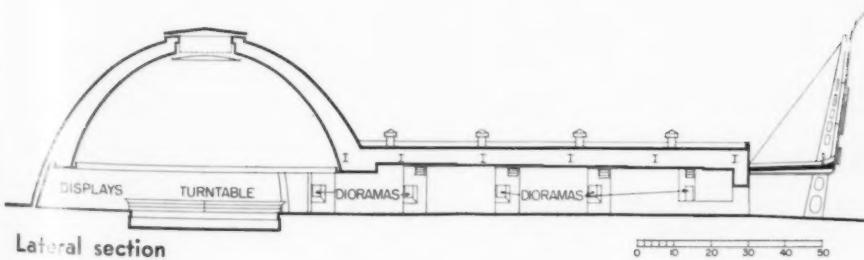
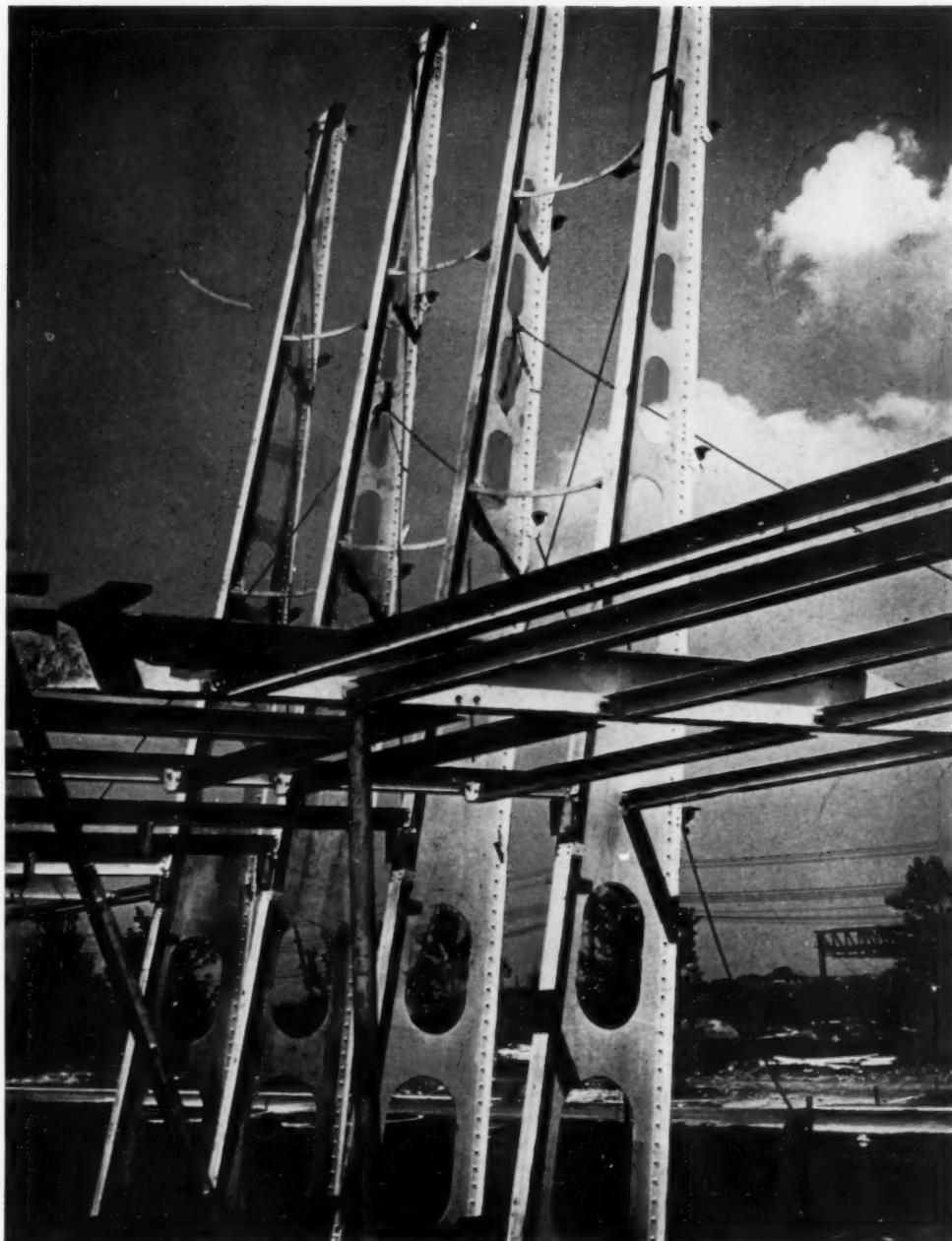
DESIGN
TRENDS



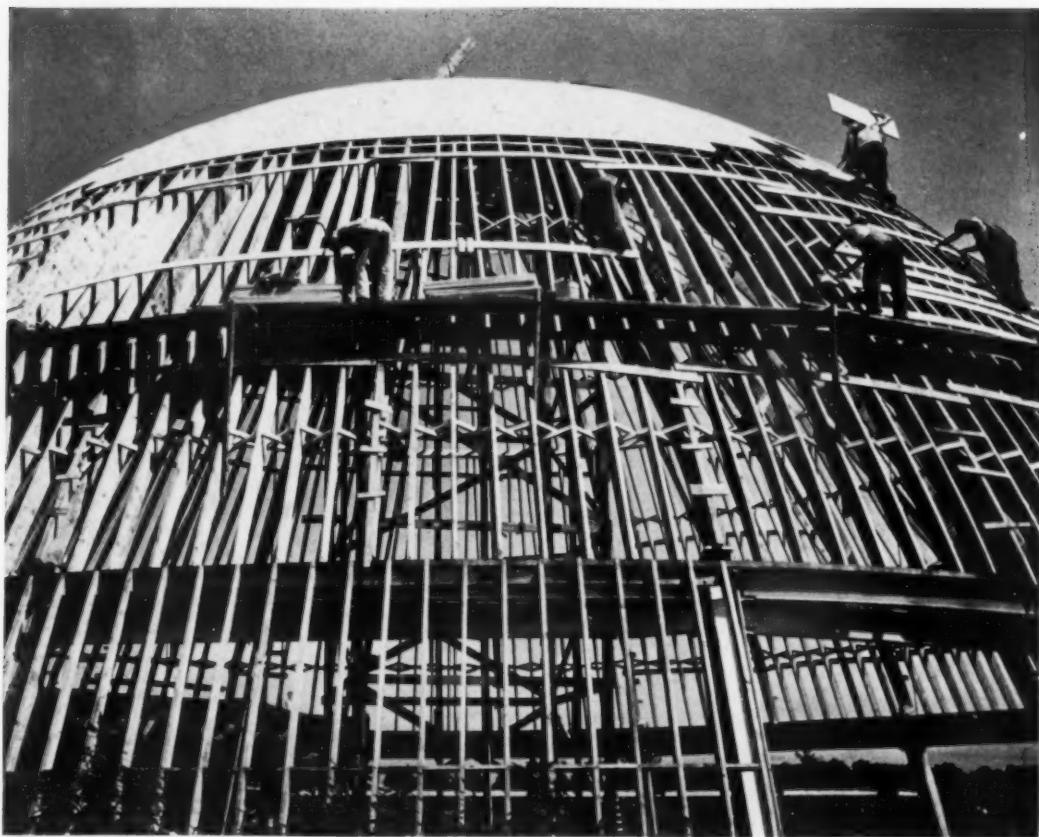
Plan. 1. Fountain. 2. Office. 3. Display. 4. Men. 5. Women. 6. Women employees. 7. Men employees. 8. Electrical room. 9. Utility. 10. Information.

THE DISTILLERS' building not only boasts an unusually wide range of structural and finish materials—steel, glass, wood, metals—but also new applications of many of them. The steel framing of both canopy (top, left) and marquee (right) is unusual. In the former, a cantilever is achieved by means of diagonal bracing and an anchor-type footing (see Foundations, page 91.) In the marquee, the 40 ft. vertical members become a decorative feature of the entrance, their pierced webs lightening the construction actually as well as esthetically. In its finished form (right, below) this marquee will be faced with corrugated enamel sheets, on which a free-standing design in sheet metal and composition will be applied. Corrugated and block glass are widely used in the garden, both for decorative (see pools, over page) and utilitarian purposes.

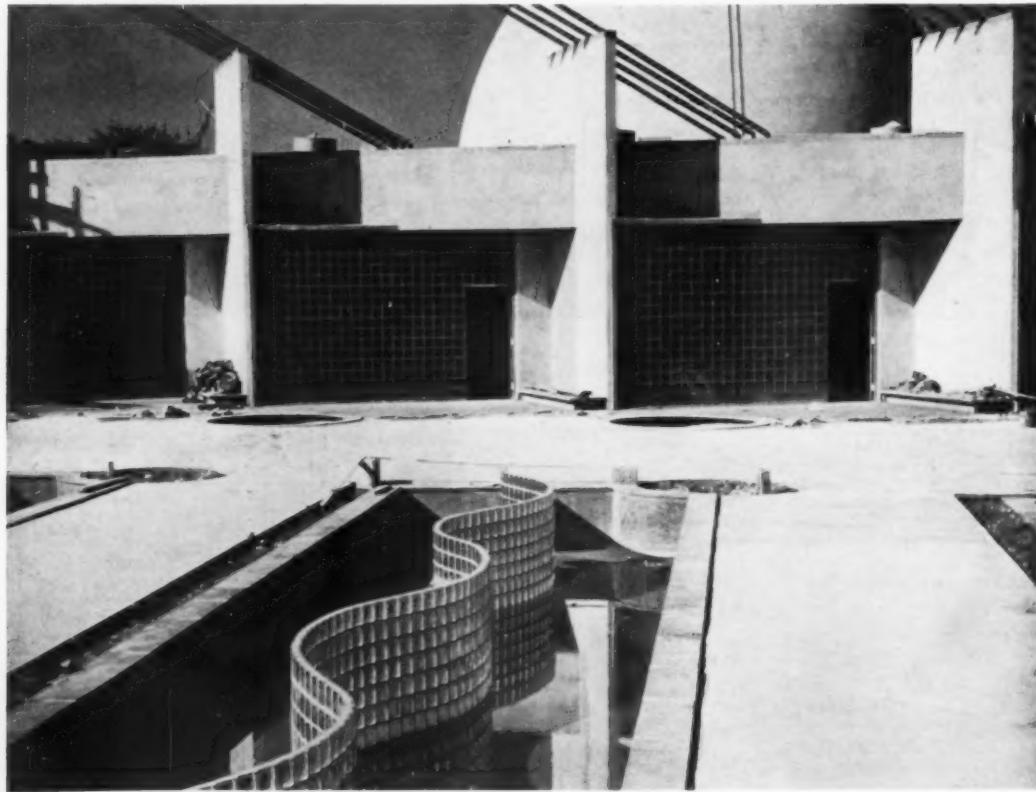
Exhibit material—which is industry-wide and with no brand or company advertising—is organized into two main halls, the second one centered by a revolving turntable. Lounge, terrace, and dressing rooms for exhibit members are grouped along one end, while the garden (bottom, over page) occupies a large proportion of the remaining ground area.



DISTILLED SPIRITS, INC.



The steel-framed dome is sheathed in wood and insulation board, finished in stucco, painted.



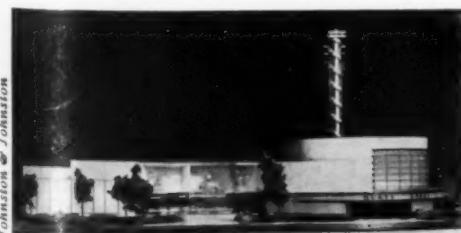
The garden, one of the most elaborate of the Fair's private exhibits, is designed for heavy use. Hence, grass areas are eliminated, planting confined to beds. Full-grown lindens will shade each bench.



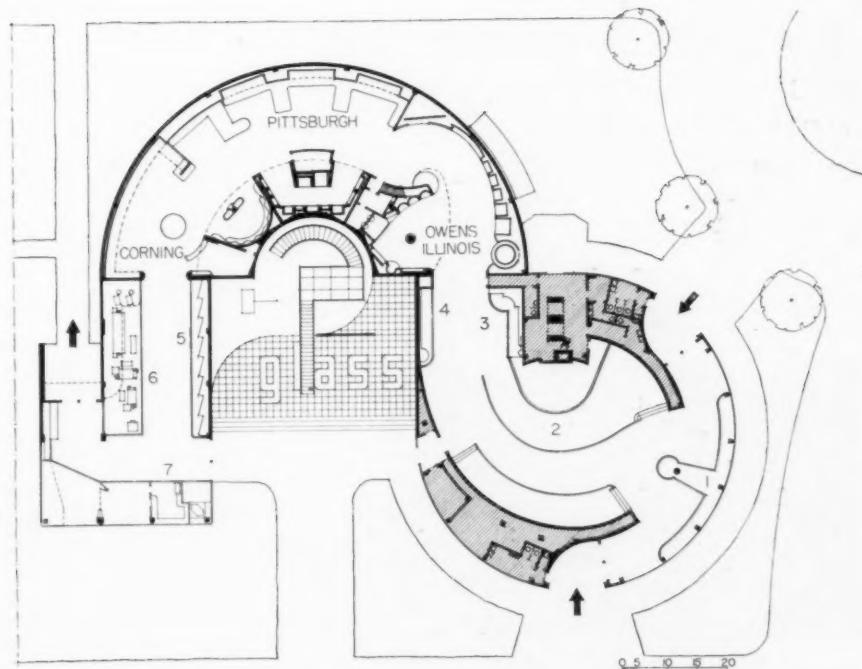
5. GLASS, INC.

SHREVE, LAMB & HARMON, Architects
SANDERSON & PORTER, Engineers

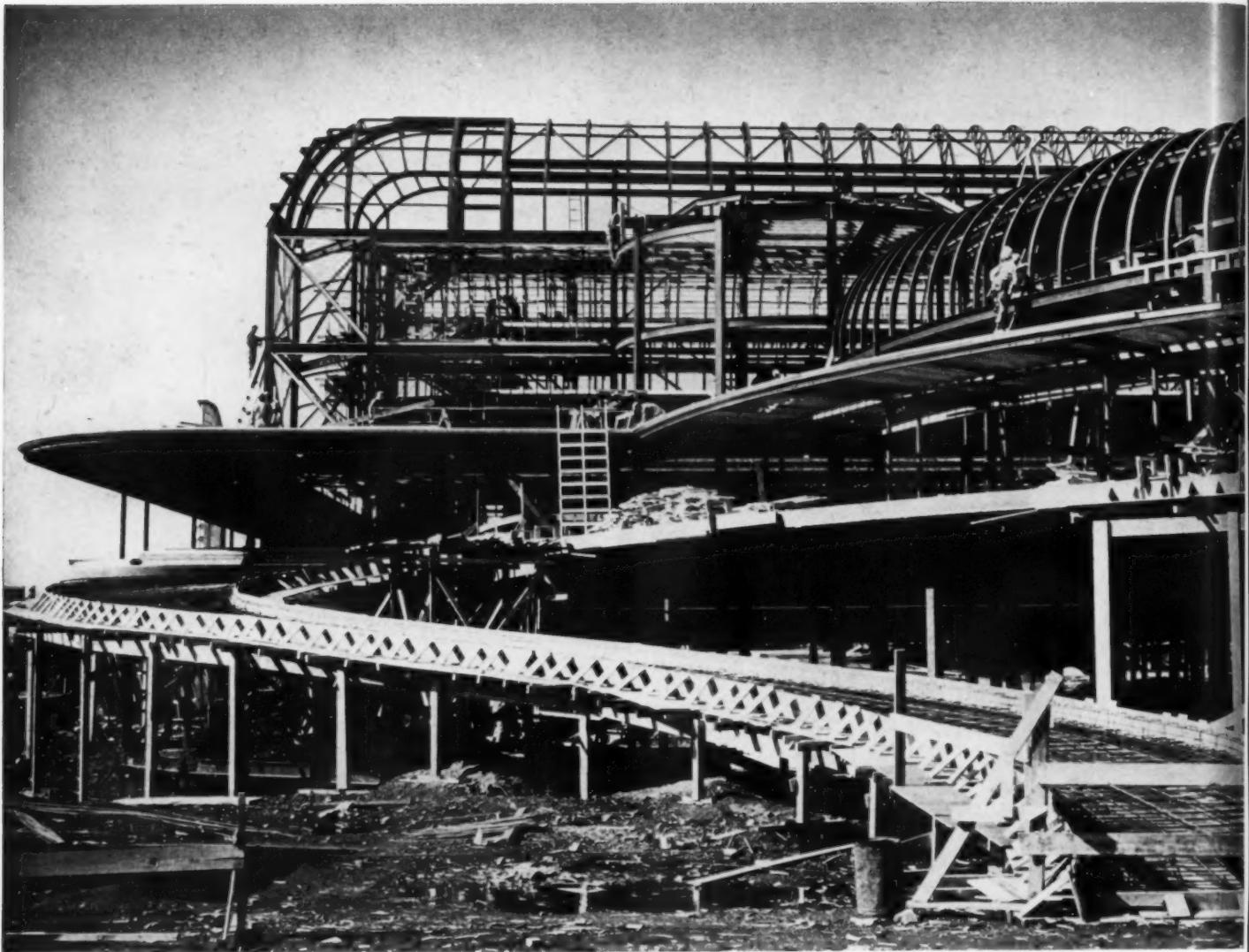
ANOTHER industry-wide exhibit, this building makes use of glass in block, plate, and structural forms to demonstrate its properties: strength, transparency, and precision. The structure is multi-level, designed for one-way traffic (see plan, right). Among its novel features will be a glass-paved terrace, a stairway and ramp of the new case-hardened plate, and a decorative tower of blue plate.



Model



Plan, main floor. 1. History of glass. 2. Hot-glass exhibit. 3. Manufacture. 4. Chart of glass. 5. Properties of glass. 6. Glass-fibre machine. 7. Glass in the home.



6. GENERAL MOTORS CORP.

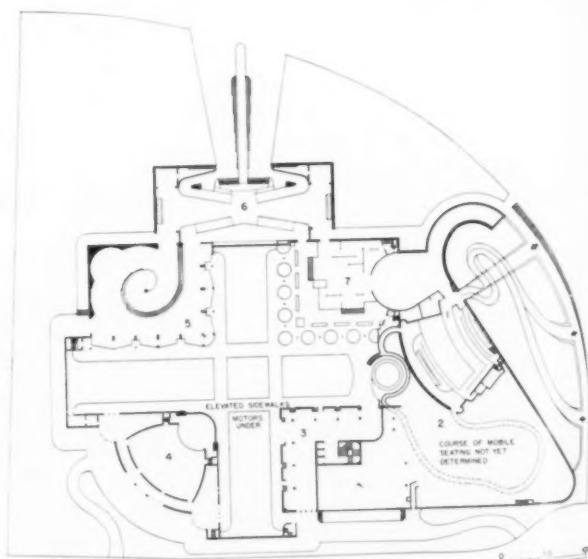
NORMAN BEL GEDDES, Designer

ALBERT KAHN, Architect

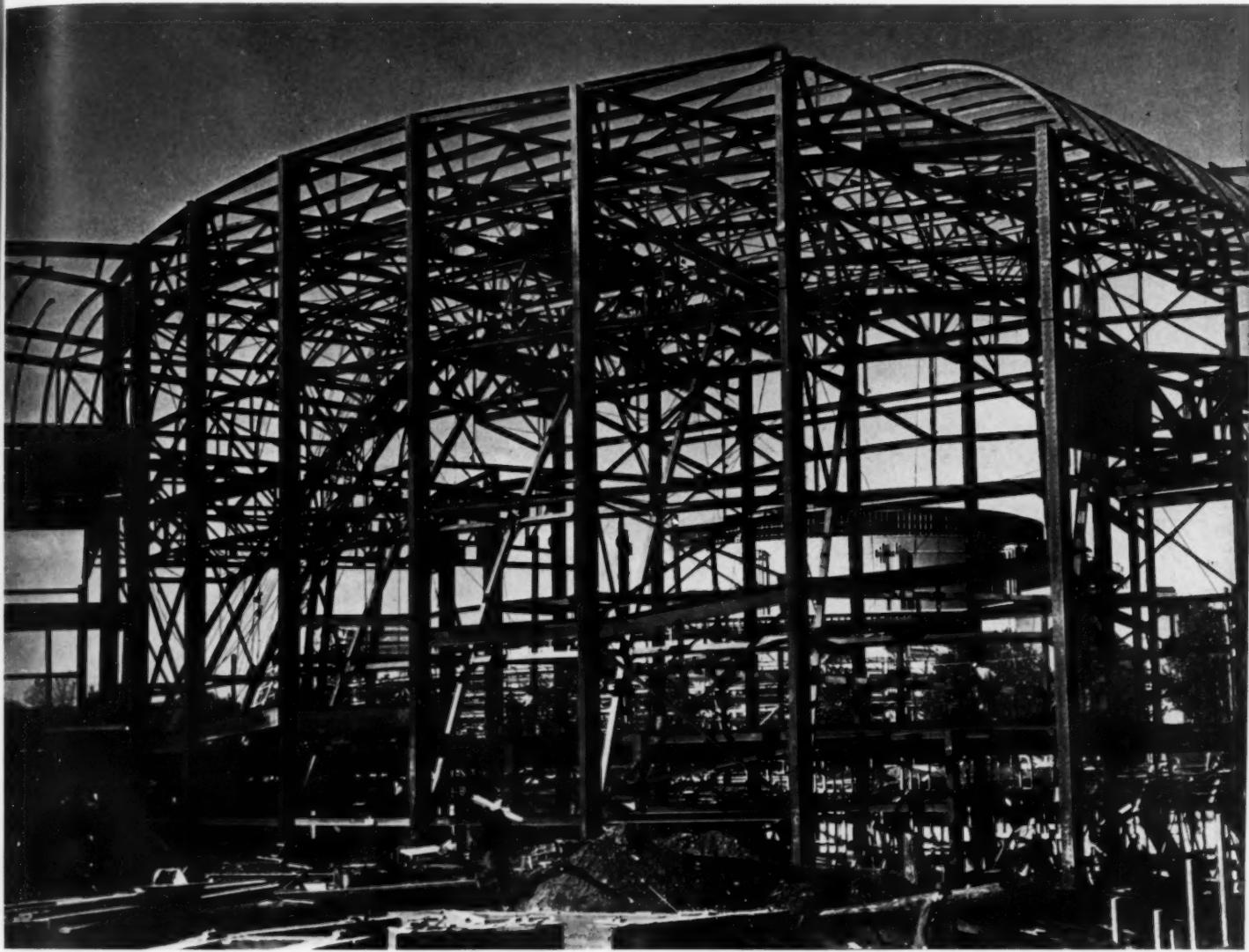
Richard Garrison



Model



Plan, main floor: 1. Main entrance and loading platform.
2. Display space for model town. Moving chairs on ramp will take visitors through exhibit. 3. Apartment and hotel display.
4. Auditorium. 5. Automobile display. 6. Entrance and Diesel display. 7. Frigidaire display.

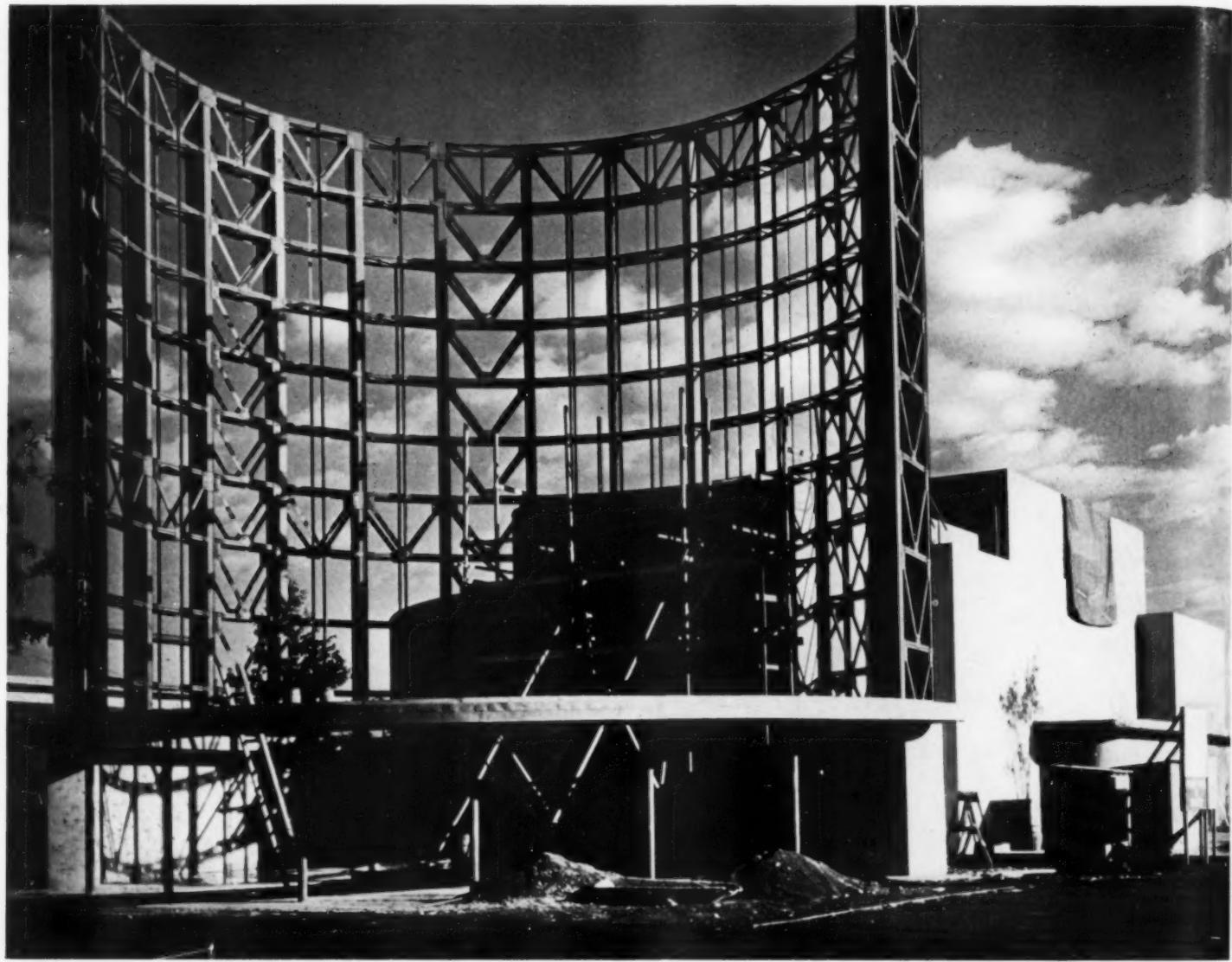


THE LIGHT but elaborate steel framing of the G-M building grows out of the design problem of housing an exhibit which not only focuses on the mobility resulting from the development of the motor car but also attempts to express architecturally the concepts of "streamlining" now current in the automotive field. Thus the full-scale model of an urban street intersection of the future (complete with elevated pedestrian walks, full-sized motor filled streets, and life-size modern buildings) is an expression of the first requirement. The curving walls, rounded parapets and "streamlined" lettering are expressions of the second.

Notable feature of the exhibit will be the street intersection (open cruciform in model, facing page) flanked by four full-size buildings—apartment hotel, theatre, sales and office building, retail store. This last will boast circular showcases which rise as a unit to upper floors for changes in display.

Although the exhibit has three entrances and is multi-level, the main traffic stream will be routed through the major entrance along a series of spectacular ramps into a loading room (1 on plan). From this point visitors will be carried—on an escalator comfortably equipped with paired seats—through a huge introductory diorama (2 on plan) showing potential traffic facilities of the future. In the rest of the exhibit, traffic is not controlled.

Exterior finish will be a new lacquer developed for auto bodies, applied to stucco with air brush.

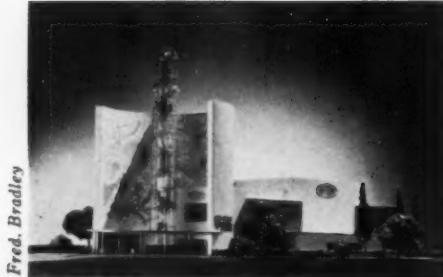


7. E. I. DUPONT DE NEMOURS & CO.

WALTER DORWIN TEAGUE, Designer of Exhibit

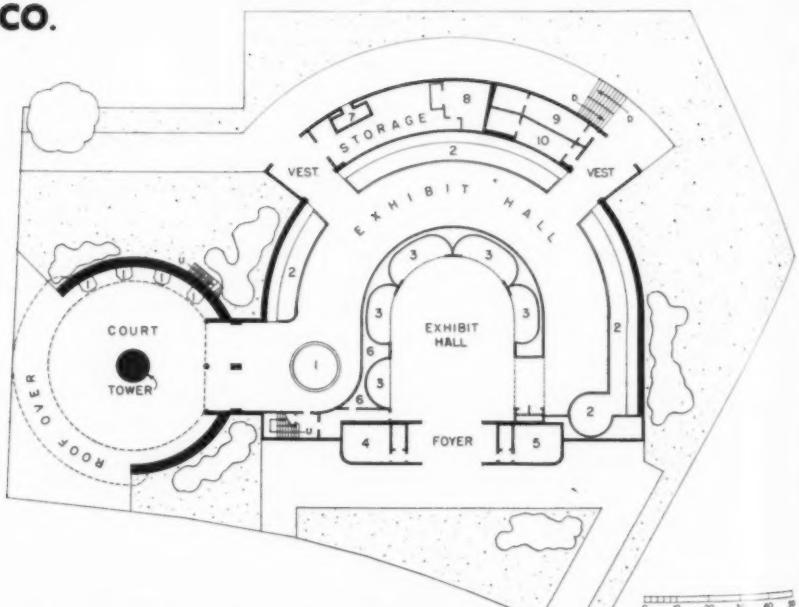
ROBERT J. HARPER, Associate

A. M. ERICKSON, Engineer



Fred Bradley

Model

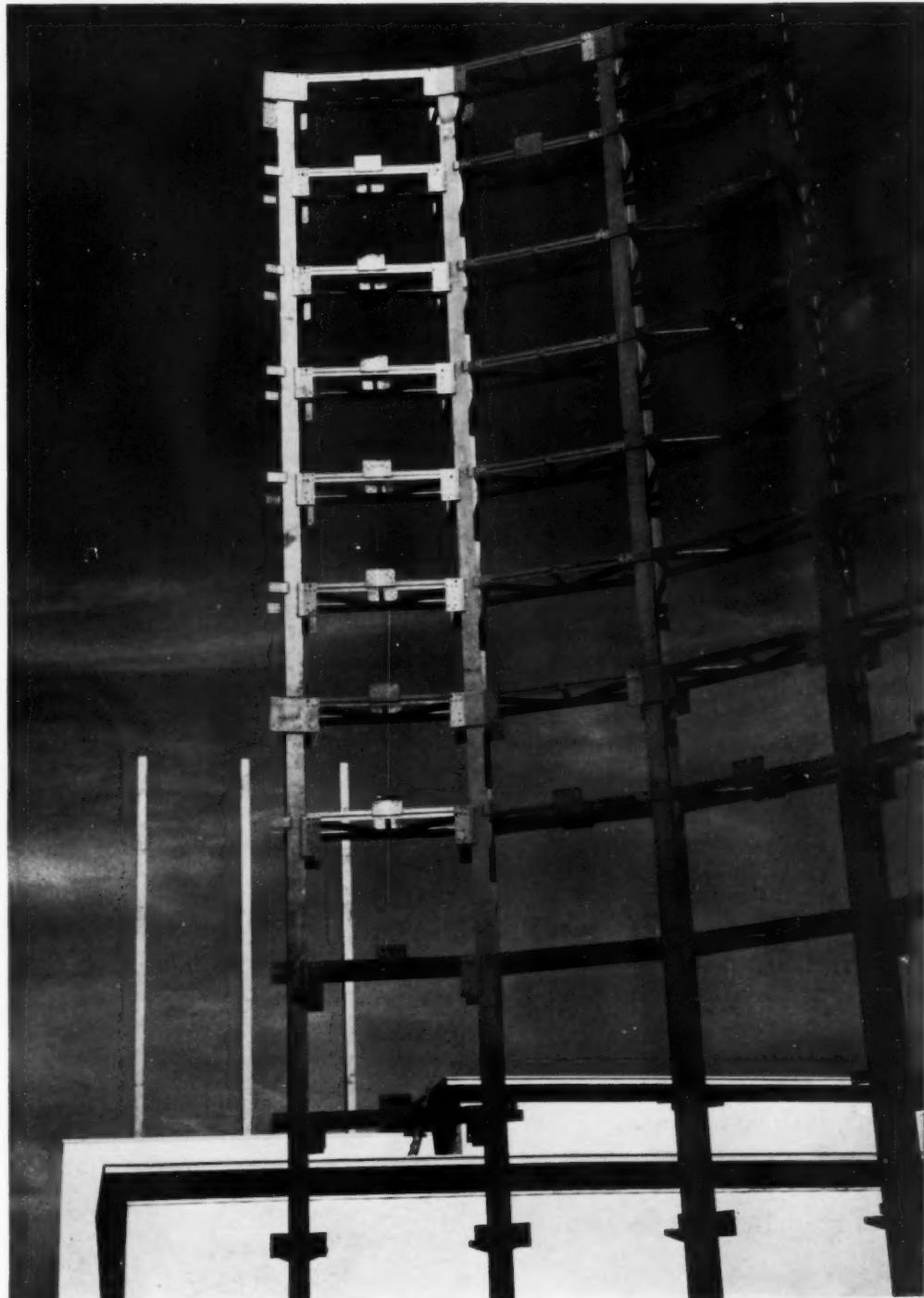


Plan, Main floor. 1. Display cases. 2. Exhibit platform. 3. Dioramas. 4. Men's rest room. 5. Women's rest room. 6. Service. 7. Transformer vault. 8. Air conditioning. 9. Women's lockers. 10. Men's lockers.

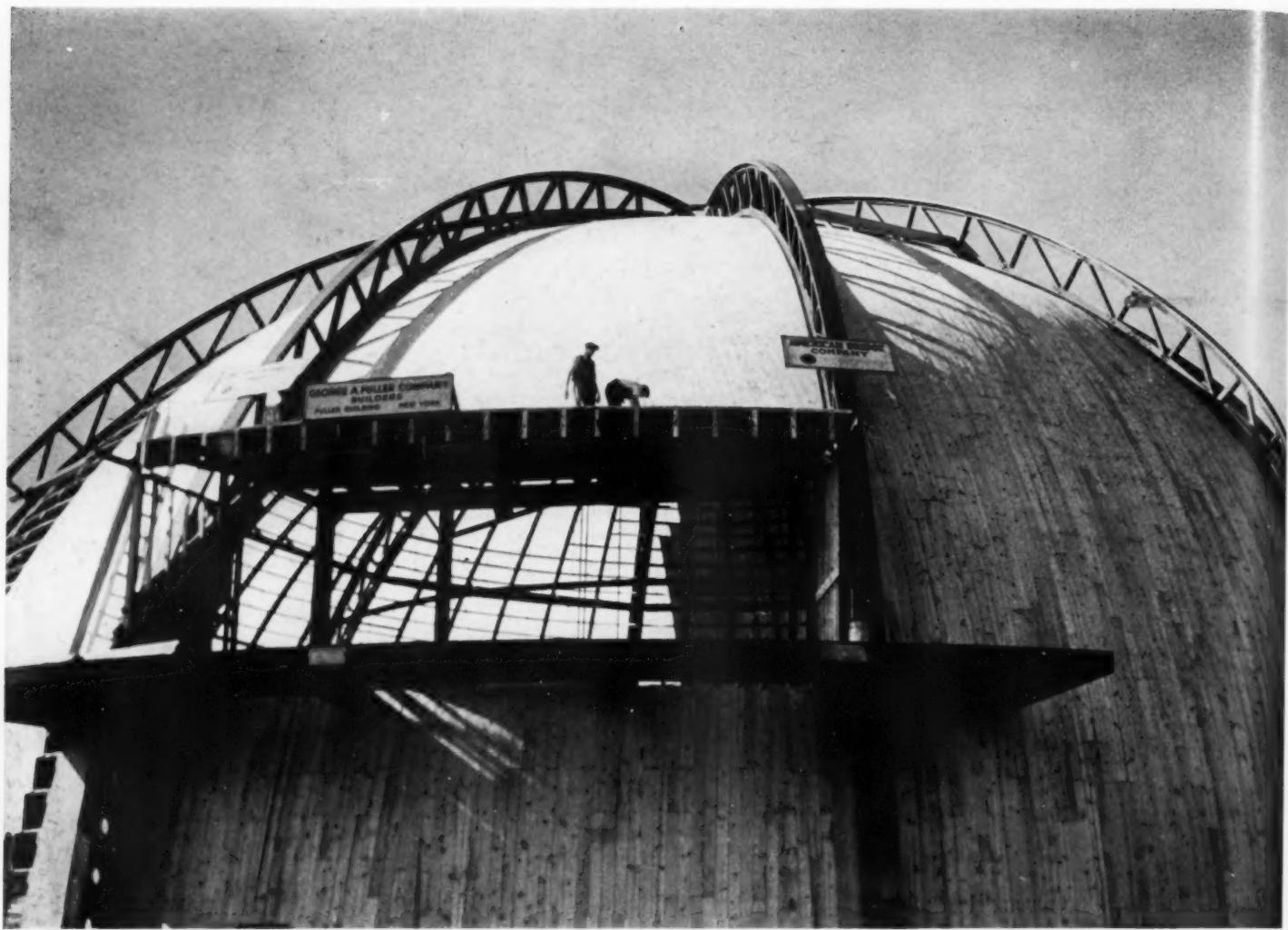
MAIN ARCHITECTURAL emphasis of the DuPont building was originally scheduled to have been "one of the largest murals ever executed" on the plastered surface of the semicylindrical entrance court (bottom, facing page). As the steel framing—designed to withstand wind pressures created by its odd shape—went up, its decorative possibilities became increasingly apparent (right); it has now been decided to leave it unplastered.

The exhibits are organized in sequence for one-way traffic. The entrance court is centered by a 100-ft. tower consisting of laboratory equipment, greatly enlarged.

Active displays of chemical processes will be arranged in the outer hall, while in the central room 5 small stages will be used for a marionette production. Many of the exhibitors' own products—plastics, enamels, fabrics—are incorporated in the building itself.



Longitudinal section



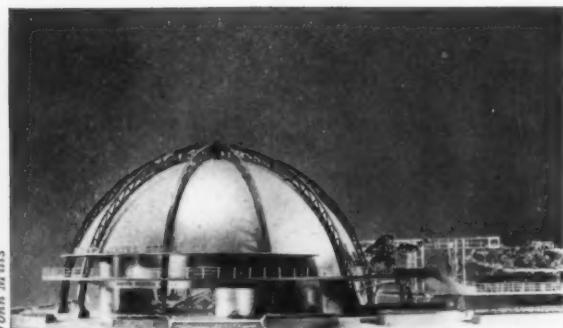
8. UNITED STATES STEEL

WALTER DORWIN TEAGUE, Designer of Exhibit

GEORGE FOSTER HARRELL, Associate

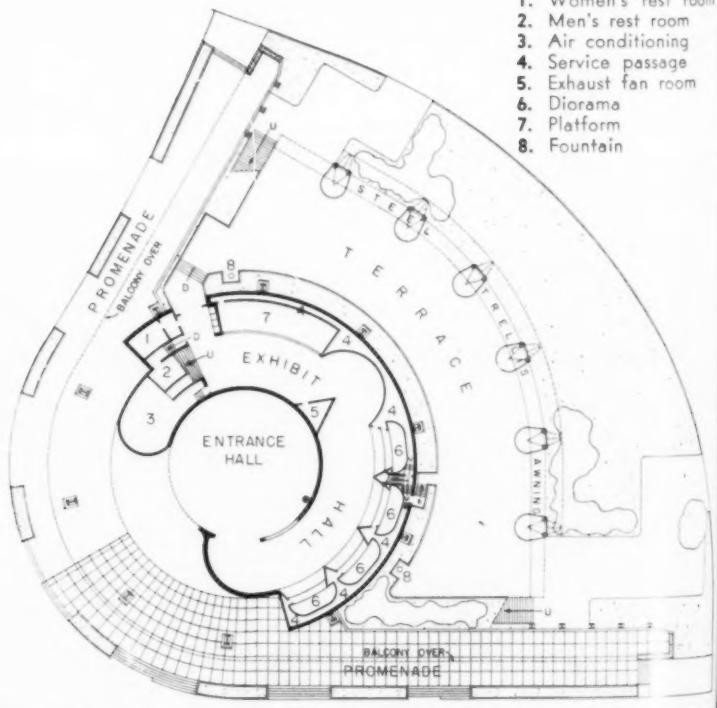
YORK & SAWYER, Architects

1. Women's rest room
2. Men's rest room
3. Air conditioning
4. Service passage
5. Exhaust fan room
6. Diorama
7. Platform
8. Fountain



John Mills

Model

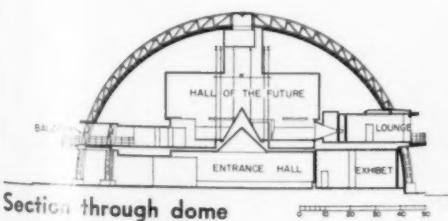


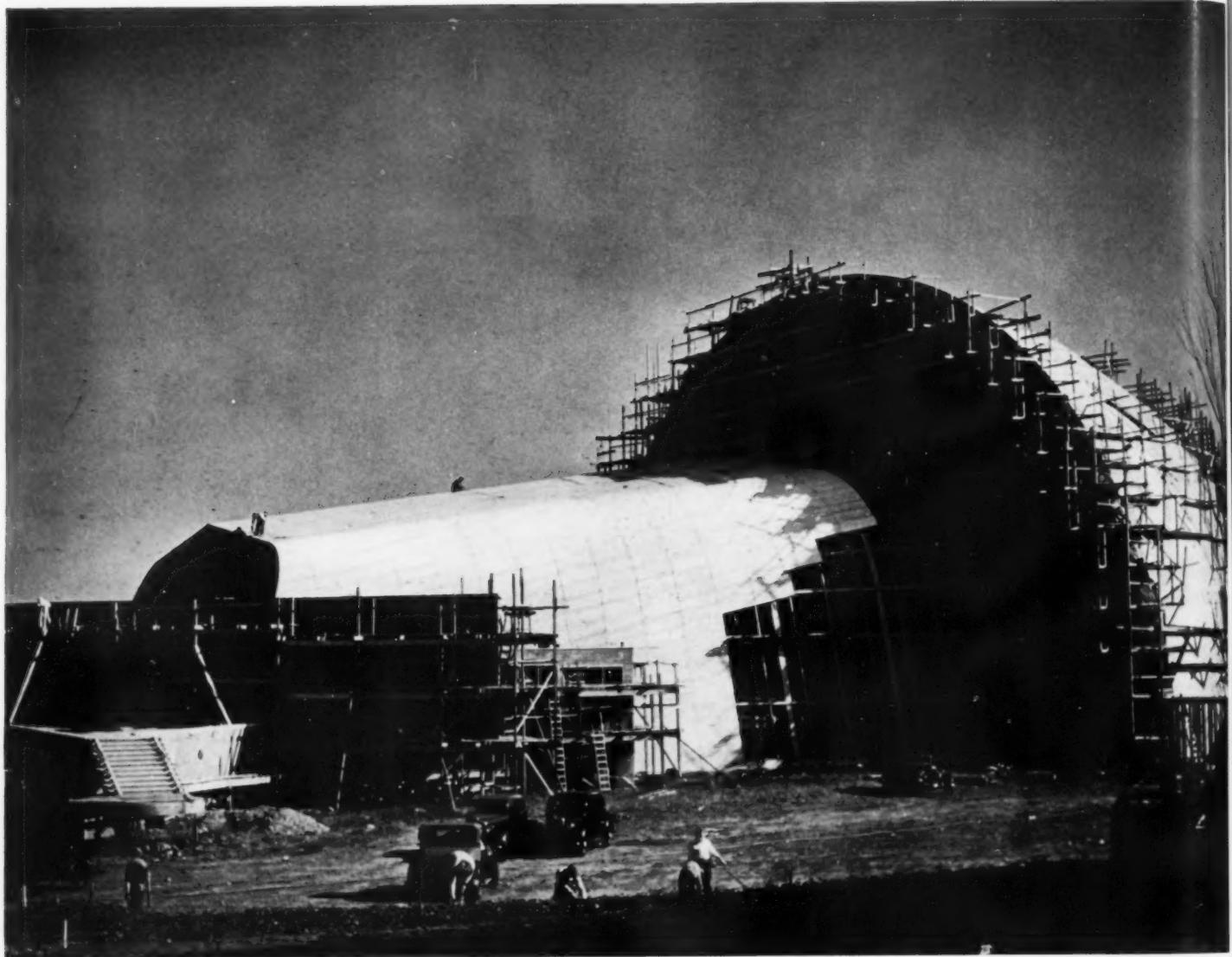
Plan, main floor

U. S. STEEL is one of the few exhibitors at the Fair whose building will itself be largely fabricated of its own products—steel and concrete. From the dome, with its stainless steel shell hung from five intersecting open-web arches, to the elaborate trellage employing various steel members (right), the structure will demonstrate the multiple uses of steel in specific design problems. Most notable structural application is in the dome itself (right, below) which—with a relatively light and simple construction—gives an unbroken floor area of approximately 15,000 sq. ft. and a maximum height of 65 ft. Stainless steel will be used in a number of forms for surfacing—in corrugated panels on some of the outer walls, in specially fabricated curved sheets on the dome, in paper-thin sheets on interior walls; exterior flooring on the rear balcony is of multi-grip steel floor plates. Much of the interior trim and finish will be of steel in various commercially available forms.

The plan is organized to permit an orderly and easy flow of traffic through the exhibit, which occupies two floors. Entering the circular Entrance Hall (bottom, facing page), traffic flows through a semicircular corridor (whose outside walls are lined with dioramas depicting manufacture of steel products), up the stairs into a circular "Hall of the Future", out onto the balconies and down the exterior steps.

Externally, the building will be in stainless steel, except for structural members, which will be painted blue.

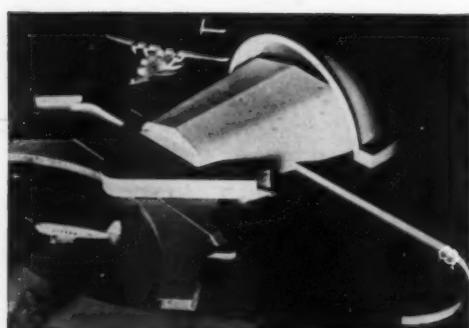




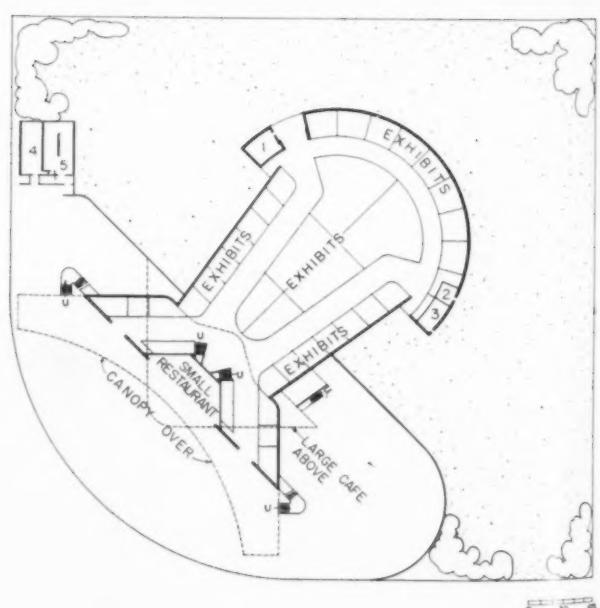
9. AVIATION BUILDING

WILLIAM LESCAZE and GORDON CARR

Associated Architects



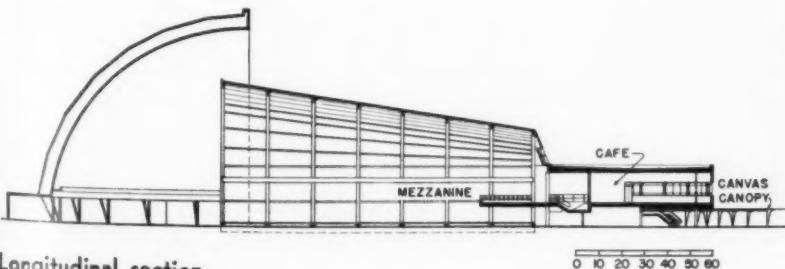
Model



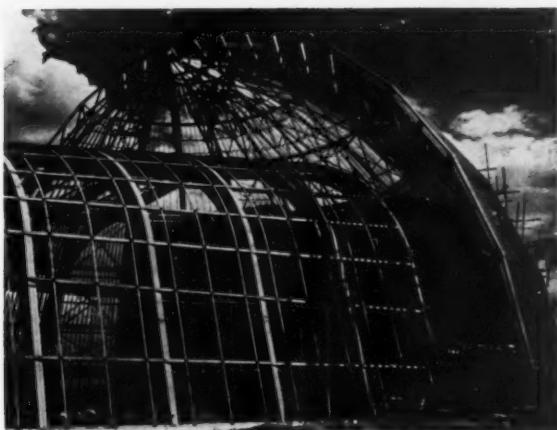
Plan, main floor. 1. Utility. 2. Switch. 3. Transformer.
4. Men. 5. Women

ANOTHER OF THE structures notable for its steelwork is the Aviation Building. It is one of the few Fair-built structures which departs from the standards of design governing general exhibit buildings (see p. 89). Although its general form is representative of "flight in space", the Aviation Building actually fills two basic requirements: a large floor area, and sufficient internal height in which to suspend a modern skyliner. The problem of a low-cost, rigid envelope has been solved by the designers in the use of two structural systems—shop fabricated, solid-section, hinged arches for the cone (top, right) and open-web arches of more usual design in the semisphere (center, right). The former is sheathed in corrugated asbestos, the latter in canvas. Another feature is the huge stressed-canvas canopy across the entire front (see plan, facing page). Laced, ship style, to a system of braced tubular steel columns, the canopy is anchored by means of tie-rods to concrete blocks at each end.

The exhibit space is confined to one floor, with no provisions for traffic control. Focal point of the display will be the plane, suspended in the open semi-spherical dome on whose cement-plastered surface cloud and light effects will be projected to create illusion of movement. The triangular "prow" on the second floor will house a large cafe, with auxiliary services.



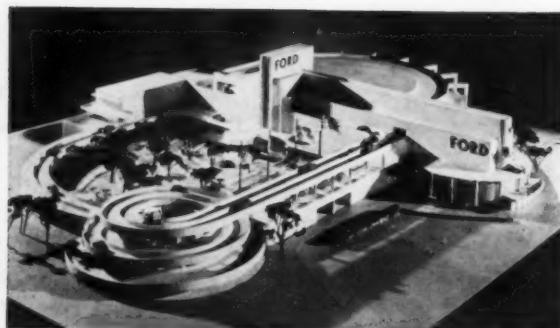
Longitudinal section



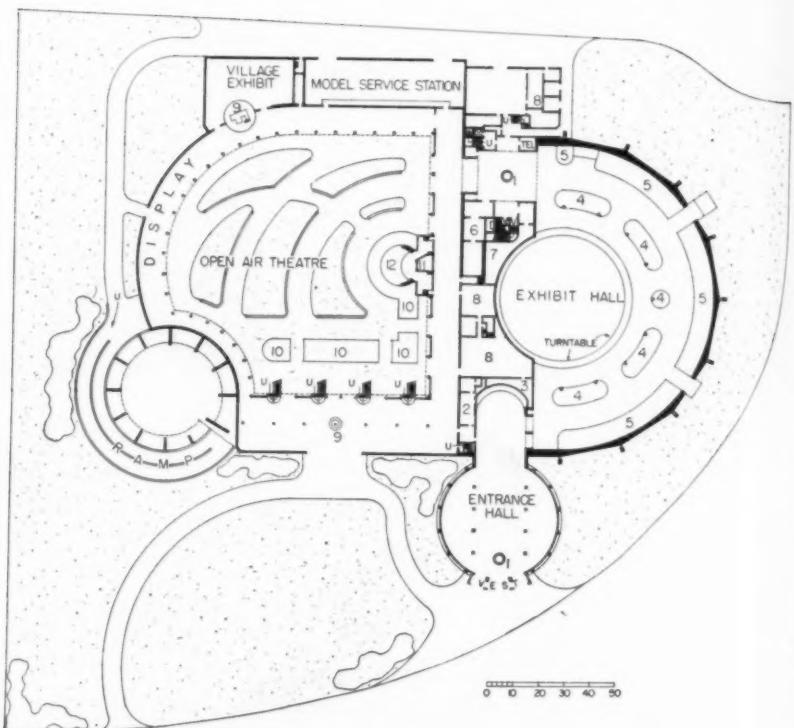


10. FORD MOTOR COMPANY

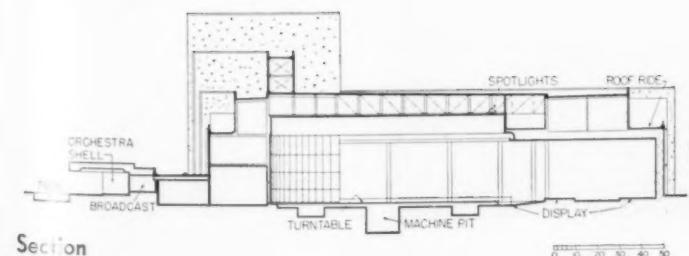
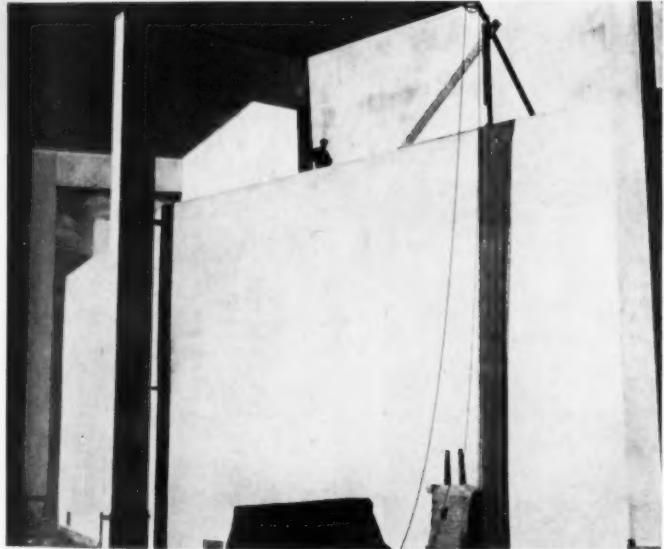
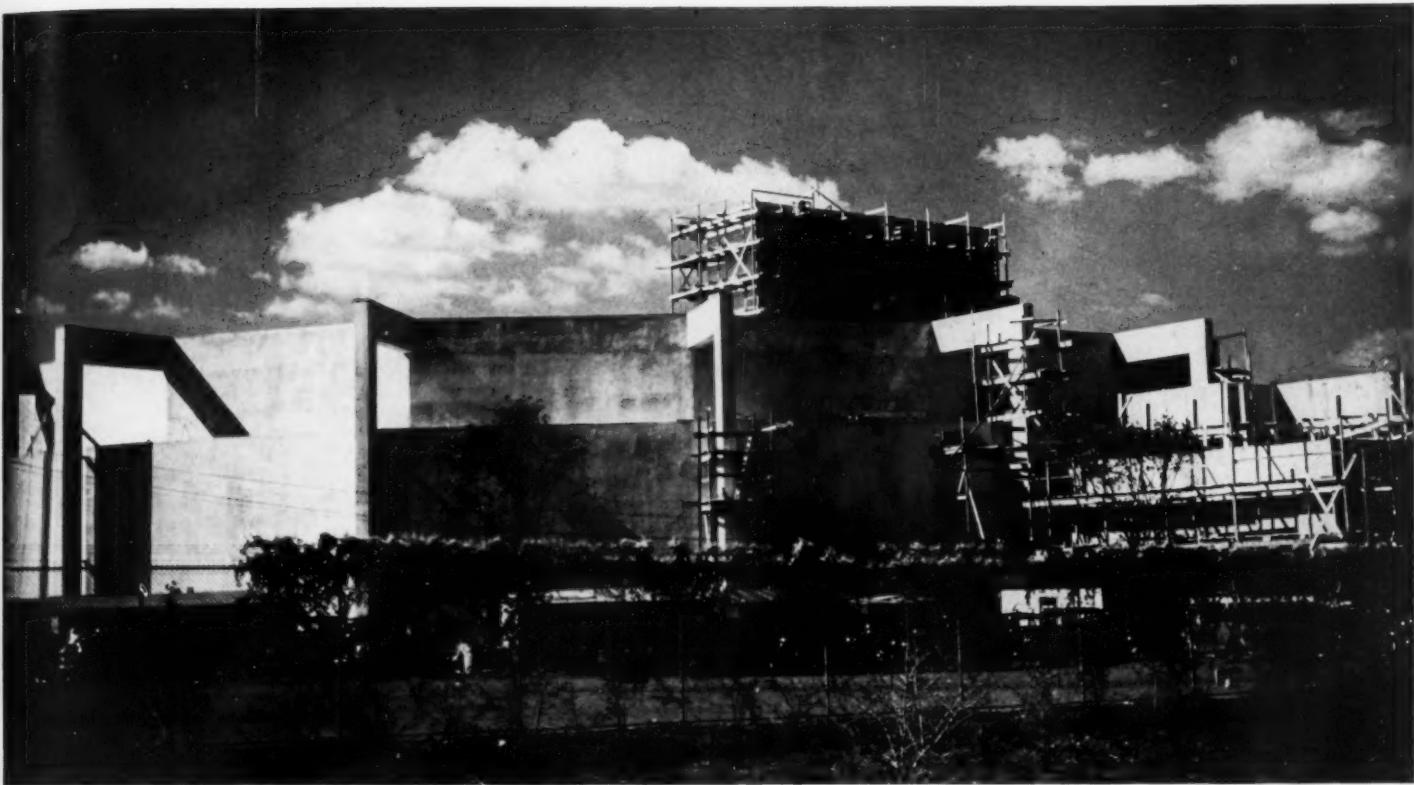
WALTER DORWIN TEAGUE, Designer of Exhibit
 CHARLES C. COLBY and RUSSELL R. KILBURN,
 Associates
 ALBERT KAHN, Architect



Model



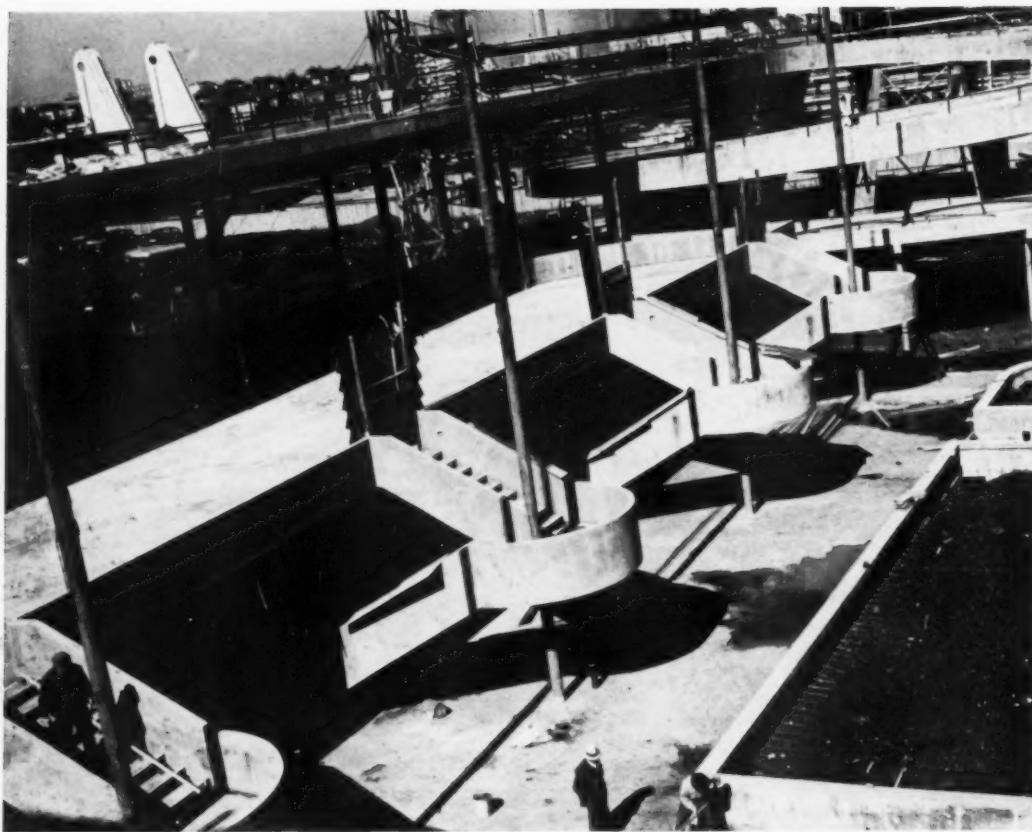
Plan, main floor: 1. Information desk 2. First-aid room 3. Mechanical equipment 4. Island 5. Platform 6. Women's rest room 7. Men's rest room 8. Service 9. Display 10. Pool 11. Broadcasting 12. Orchestra



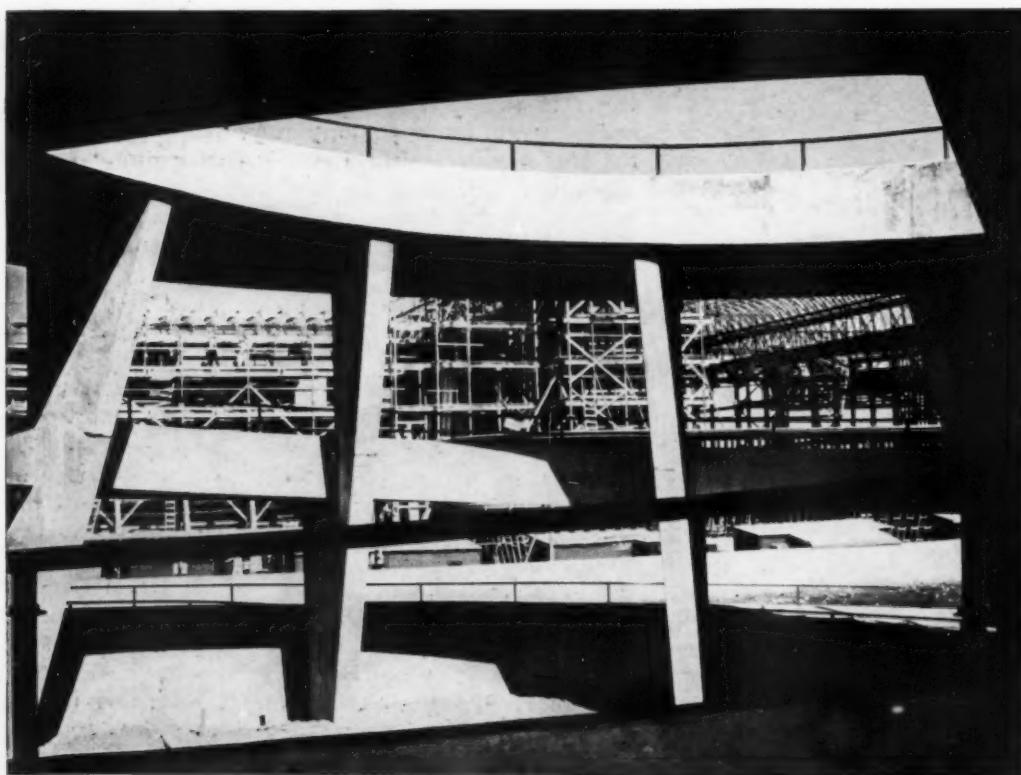
BOTH CONSTRUCTION and plan of the Ford building were largely determined by the central requirement of the exhibit—a highway for demonstrating motor-car performance. This "roof ride" led to a much wider and more spectacular use of reinforced concrete than elsewhere at the Fair. In both spiral ramp (facing page) and steps to loading platform (top, over page), concrete has been used in a manner usually confined to permanent structures. Notable is the cantilevered three-tiered spiral ramp; a truncated cone in section, this ramp is carried by a ring of columns around its inner circumference (bottom, over page).

In plan, the exhibit—one of the largest at the Fair—is organized around a 100-foot turntable in the center of the large exhibit hall. Mechanical and other displays are placed across a semi-circular aisle around the turntable. Leaving this part of the exhibit, the visitor passes into a large patio, which is surrounded by the half-mile "Roads of Tomorrow," an elevated roadway winding over the building and around the garden at various levels. The musical programs, which are an integral part of Ford promotion, had to be provided for in the structure. But exposition audiences differ radically from those of radio: they move on a casual schedule and consequently require not only different music but also different seating facilities. The plan of the Ford patio is designed to meet these needs. The irregular tree-shaded paths roughly circle the orchestra platform; the sides furthest from the platform are lined with benches; thus the audience can move with complete freedom. A studio behind the platform provides complete broadcasting facilities.

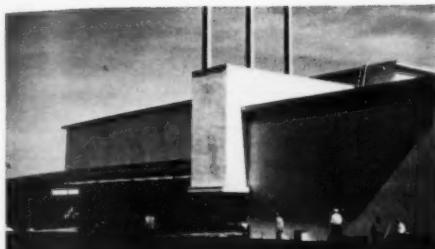
FORD MOTOR COMPANY



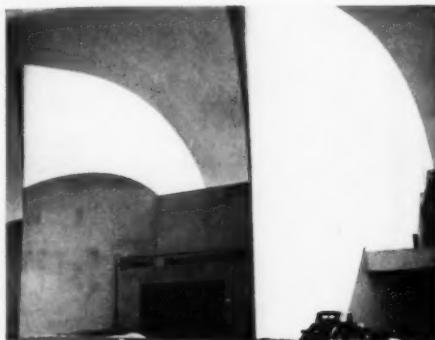
Entrance to loading platform of "roof ride" is by means of cantilevered concrete stairs.



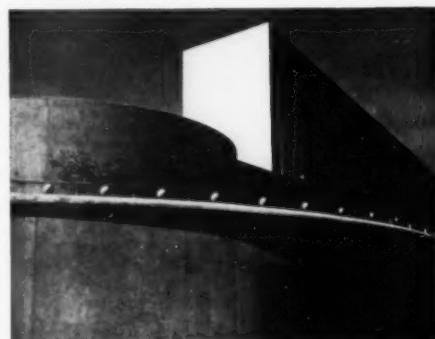
Interior detail of spiral ramp on "roof ride", showing method by which it is supported.



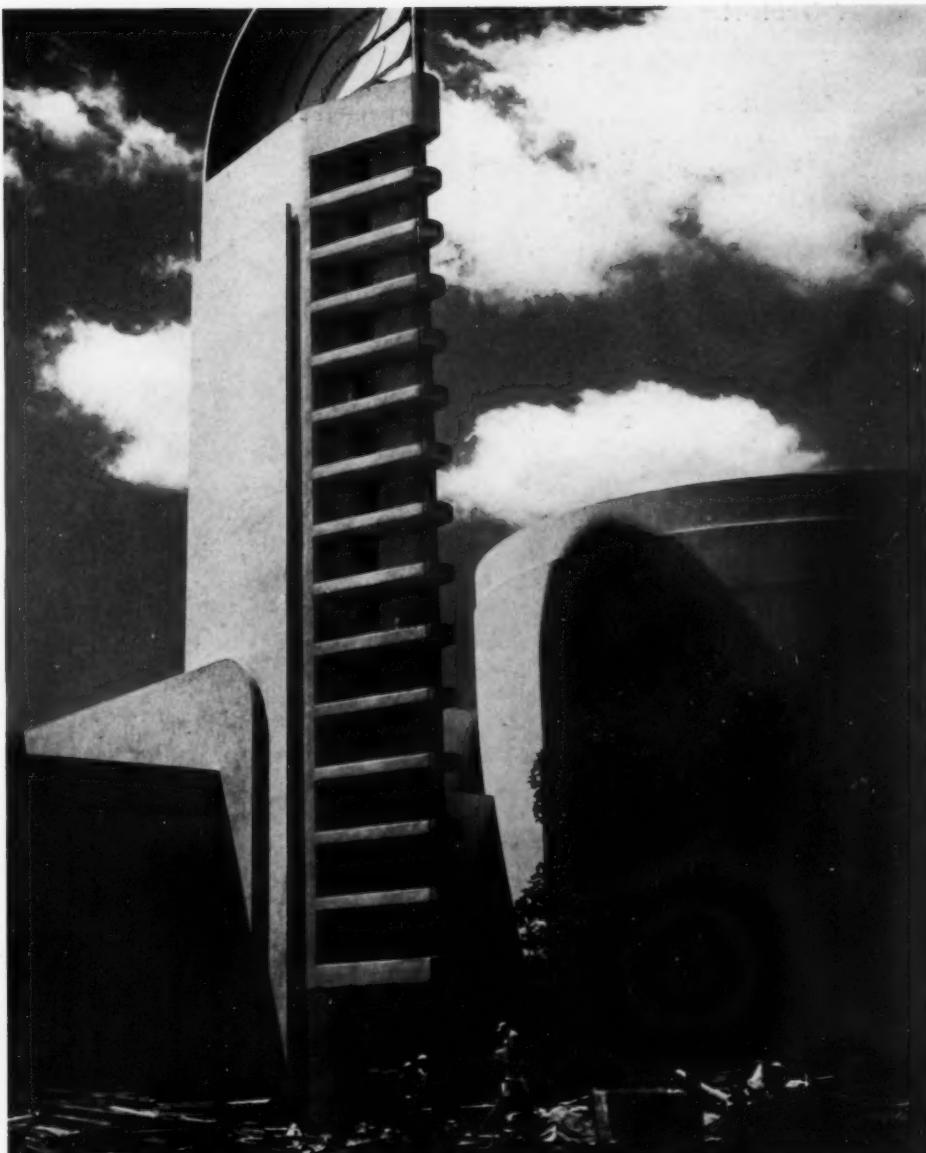
Chemicals and Plastics Building. Joseph H. Freedlander, Maximilian Bohm, and Charles Beeston, architects.



Maritime Building. Ely Jacques Kahn, Muschenheim and Brounn, architects.



Textiles Building. Frederick G. Frost, Sr., Frederick G. Frost, Jr., and Ward W. Fenner, architects.



Decorative pylons, Transportation Building. James Gamble Rogers, architect.

EXHIBIT DESIGN

JOHN P. HOGAN*

THERE WILL BE in all on the Fair Site about 375 structures ranging from information booths and concession stands to pumping stations and exhibit buildings. Of the major structures, 100 will be exhibit buildings and 50 amusement concessions.

Of the 100 or more exhibit buildings, the Fair Corporation will construct only about one-third. Most of the Corporation buildings were completed before the other exhibitors began to build. With

some notable exceptions, the general character of the buildings has followed the principles, both in interior arrangement and in details of construction, which were established by the Corporation. As the general plan was completed, Fair buildings were located throughout the exhibit area in strategic places in order that they might serve as a control for the architecture of the buildings to be constructed by exhibitors.

In the Government Area, where a greater variation was to be expected in buildings constructed by foreign nations,

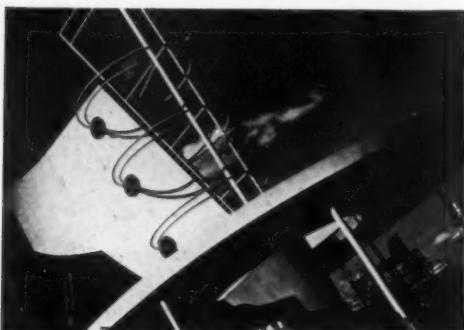
unity was retained by grouping the government buildings and the pavilions to be occupied by foreign nations (who are not erecting their own buildings) around a central court. The Board of Design did not itself design the Fair-owned exhibit buildings, although some of the members in their private capacity were architects for other exhibitors. Architects, or in many instances groups of architects, were selected for the design of the Fair-owned exhibit buildings on a program prepared by the Board of Design. In this way, and through the

*Chief Engineer and Director of Construction, New York World's Fair 1939

EXHIBIT DESIGN



Covered seat, Terrace, Textiles Building



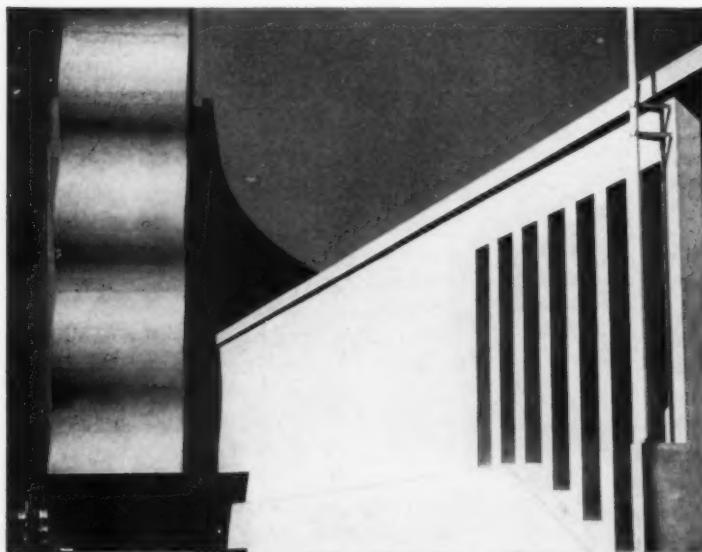
Production and Distribution Building. Corbett and MacMurray, Robert W. Cutler, architects.



Light fixture, Food #3 Building. Philip L. Goodwin, Eric Kebbon, Edward D. Stone, Richard Snow, and Morris Ketchum, Jr., architects.

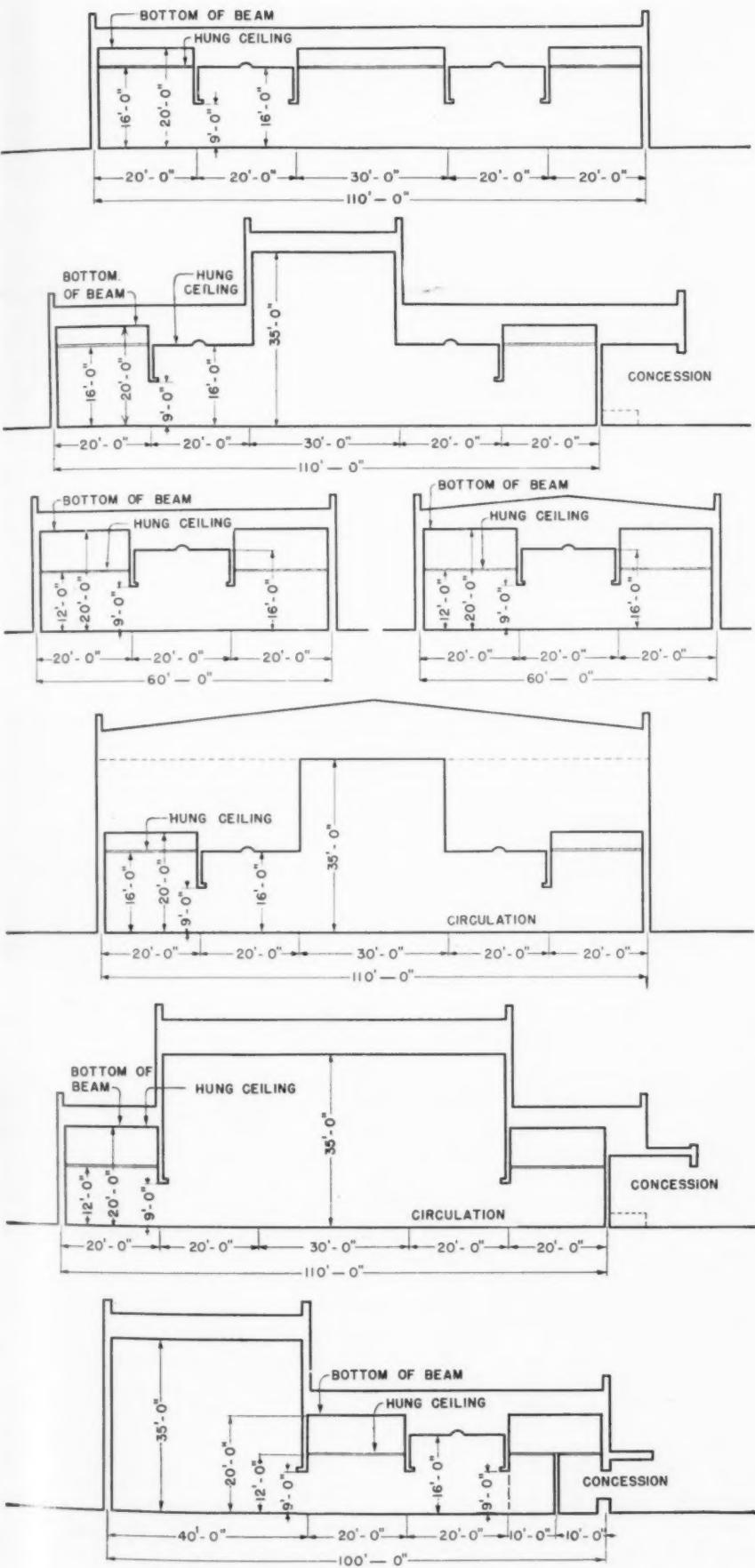


Top: Communications Building. Francis Keally and Leonard Dean, architects; Eugene Savage, muralist. Bottom: Food #2 Building. Aspinwall and Simpson, M. W. del Gaudio, architects; Carlo Ciampaglia, muralist.



Left, Hall of Pharmacy. Pleasants Pennington, George L. Payne, Jr., I. Woodner-Silverman, architects. Right, Electrical Products Building. Walker and Gillette, architects.





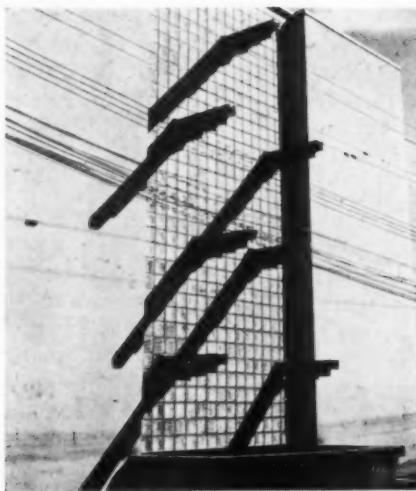
Architects of the 30-odd Corporation buildings were guided by these basic types; evolved by the Fair staff, they embody the standards here described.

freedom of individual exhibitors to select their own architects, literally hundreds of architects, sculptors, and mural painters have participated in the preparation of the Fair. All plans from Fair architects or architects of exhibitors were reviewed by the Board of Design, and in most instances were modified by suggestions from the Board.

The purpose of this control was to create a certain amount of unity without uniformity, and insofar as possible, to avoid a lack of cohesion. For the same reasons, general control of light and color within reasonable bounds was exercised by the Board of Design in uniformity with a general light and color scheme prepared by the consultants of the Board. Proper landscaping was made mandatory and while very considerable latitude was allowed, pressure was brought on all exhibitors to present satisfactory landscape plans.

In determining the program for the World's Fair exhibit buildings, it was necessary for three separate departments of the Fair to cooperate, the Board of Design, the Construction Department, and the Department of Exhibits and Concessions. The Fair had been zoned by the Board of Design into eight main sectors, and it was the duty of Management to determine the amount of space in Fair Buildings which should be assigned to each sector and to determine the size of the Fair buildings which should be located in each sector. Management decided that there should be provided in the Fair-owned exhibit buildings 450,000 net sq. ft. of exhibit space, 100,000 sq. ft. of gross space for stores and restaurants, and 40,000 sq. ft. of net space for concessions. They also made suggestions in regard to the most saleable arrangement of this space based upon the experience of other Fairs.

As the Board of Design is a board of review and not an administrative branch of the Corporation, it was decided that the Construction Department was to prepare all working drawings based on approved definitive designs of contract architects, and to construct all buildings either by contract or with forces employed by it, which placed the important element of cost control in the Construction Department, and also the responsibility of carrying out into detailed design architectural conceptions of the contract architects as approved by the Board of Design. The Construction Department was also charged with the administration of the entire construction budget and preparation of detailed land-



Fountain, Metals Building. William Gehron, Morris & O'Connor, architects.

scape plans, detailed lighting plans, and the enlargements and erection of murals and sculptures from models approved by the Board of Design.

The requirements of both Management and exhibitors were analyzed, and four important determinations were reached: First, that the buildings should be one story, with entrances level from the streets and sidewalks. Second, that since the buildings were to be occupied by a number of exhibitors it would be impossible to secure good results in lighting and decoration unless complete reliance was placed upon interior lighting. This brought about a decision to have no windows. Third, that the interior should be susceptible to division into minimum units 20 by 20 ft. or multiples thereof, wherever the exhibit space was located on the side with a central aisle. Wherever a central exhibit space was provided with an aisle on each side, it was decided to make this central island 30 ft. wide. Fourth, that all aisles were to be 20 ft. wide.

This led to a typical arrangement of buildings either 60 ft. wide with two exhibit spaces and a central aisle, or buildings 110 ft. wide with two aisles, two side exhibit spaces, and a central exhibit. This determined the economical plan of the Fair buildings and was followed generally, although domes and rotundas were provided for points of special interest.

Based upon these determinations, a careful structural study was made on the various possibilities of economical construction. Many types of material were investigated and economics finally dic-

tated the selection of light steel frames and interior columns along the face of the side exhibits. Preliminary cost investigations indicated that required space could be obtained within the limits of cost in stucco, which was the material preferred by the Board of Design. It was therefore possible to build a more substantial Fair within the limits of cost than had been originally anticipated.

With some variation, the general materials of construction were as follows: steel frame with wood purlins, joists and rafters, all covered with one-half inch gypsum board. Over this was placed paper-backed lath and about one inch of cement mortar and stucco. The interiors were finished in gypsum boards, taped and sparkled. Floors were of four inches of fine stone covered with black top. Hung ceilings were generally used and the spaces between the ceiling and roof serve as plenum chambers for exhaust fans with individual motors placed about 50 ft. apart along each side. For insulating material there was placed on the interior of the outer wall and underneath the roof joists either a layer of rock wool or a metal foil insulation. A small fire in one of the buildings indicated that this assembly, being largely composed of non-combustible materials, is very slow burning.

It was estimated that in order to meet the net space requirements it would be necessary to build 1,400,000 sq. ft. of exhibit buildings at an estimated cost per sq. ft. of from \$4 to \$6, depending on the character of the foundation. The lower costs were for buildings on spread footings and the highest cost for buildings supported throughout on piles with supported floors. A survey of the soil conditions throughout the site, assisted by numerous borings, indicated that the average cost would be about \$5 per sq. ft., and a budget was accordingly set up for exhibit buildings of \$7,000,000. Through good design and careful cost control, the space requirements have been more than satisfied by the construction of 1,159,000 gross sq. ft. at an average cost of about \$5.25 per sq. ft. The slight increase in average cost is entirely due to the fact that more Fair buildings were built on piles than was anticipated, due to the tremendous building program of exhibitors.

The temporary character of the buildings and the need for economy dictated a rather plain type of building, but

through the ingenuity of the designing architects, many interesting forms and shapes have been worked into the structures without exceeding the cost limitations. The relatively simple character of the buildings also dictated the modern type of architecture, which will be characteristic of the entire Exhibit Area. In the Government Area the buildings built by foreign nations will be generally of a more substantial construction, and the modern trend will not be so pronounced. In the Court of States there will be a group of thirteen buildings which will illustrate different early types of architecture in this country, including a replica of Independence Hall. In the Transportation Area the buildings are equally as substantial as those in the Government area will be.

As far as the Fair-owned exhibit buildings are concerned, it was necessary to rely greatly for effect on color, light, and elaborate landscaping, and if the Fair is to teach any architectural lesson it will be emphasis on the necessity of the combination of all these elements in harmony with the design of the buildings themselves. Particularly interesting is the attempt to produce a gay and harmonious color scheme without varying contrasts or incongruity. The success of this effort may also be a lesson for the future.

Finally, in order to complete the decorative features, liberal use has been made throughout the site both by the Fair Corporation and by exhibitors of mural paintings and sculptures. All schools of artists and sculptors were given an opportunity to display their skill, and many comparatively recent techniques and materials have been used. Here also a strong effort has been made by the Board of Design to allow for a variety of thought, expression, and material without disturbing the harmonious whole.

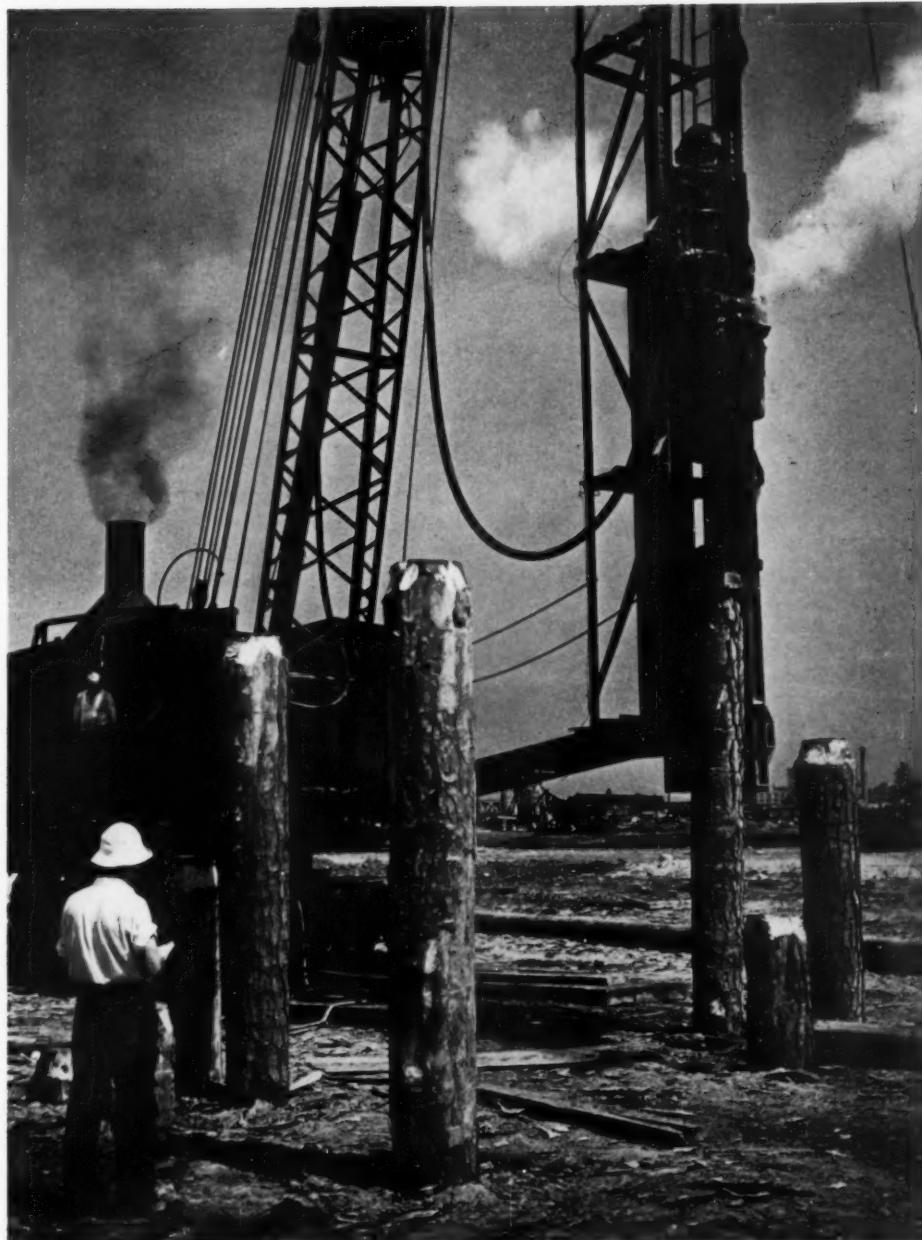
In construction, the principle has been followed of finishing areas as fast as the buildings are completed. The planting of trees along all the main avenues started the moment the grading of the site was finished and is practically completed at this time. As soon as the last area of stucco has been completed on any building, the landscape engineers start grading, and planting. A majority of the trees have already been planted and the remainder are going in; two-thirds of the roads and walks have been paved; utilities are all in and operating.



Concrete piling, New York Amphitheater. Sloan and Robertson, architects.



Footing (above), Distilled Spirits Building. Piling (right), French Building. Expert and Patou, architects.



FOUNDATIONS

L. B. ROBERTS*

THE SITE selected for the New York World's Fair 1939 was known as Flushing Meadows—a tidal marsh over three miles long and more than a mile wide in certain places, traversed by a sluggish tidal stream known as Flushing Creek. This location was regarded as ideal for such a purpose, due to its adequate area and its accessibility to high-speed transportation facilities.

The original swamp surface of matted

vegetation covered a silt formation containing a high percentage of water which in places is as much as 80 ft. deep below high tide. Underlying this silt is a stratum of firm sand suitable for foundations.

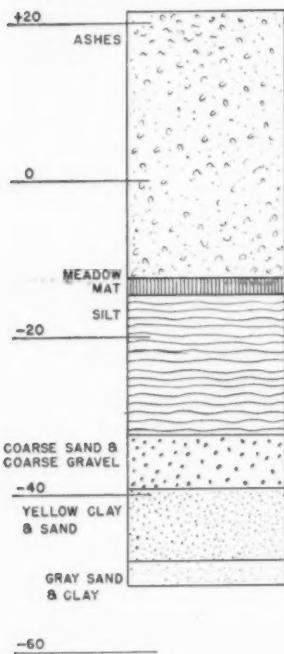
For more than 30 years portions of this swamp had been used as a City dump, and some fifty million cubic yards of ashes and rubbish had been placed on the area. During the years when this material was being dumped, the fill in some places, had a total depth of over

125 ft., and its weight had forced the meadow surface downward 30 to 40 ft. below the original swamp level.

Ownership of the greater part of this swamp had been acquired by the City of New York for development as Flushing Meadow Park. An agreement was entered into between the World's Fair Corporation and the City of New York providing for the temporary use of the site by the World's Fair in return for which the latter would install extensive landscaping and other permanent im-

*Assistant Chief Engineer, New York World's Fair 1939

FOUNDATIONS



Typical test boring at Fair site, showing soil conditions which building designers faced and overcame with a variety of foundation designs



Footing, Distilled Spirits Building



Spread timber footings, Gas Exhibits, Inc.

provements for the future park site.

The site was graded by the City of New York and this operation involved the movement of about 7,000,000 cu. yds. of rubbish material. This was spread over the low land and during the work the course of Flushing Creek was changed, a new channel created and two lakes having an area of 135 acres were developed.

When the grading was complete, soil borings and loading tests were made throughout the entire site. Test piles were driven and loading tests were made to determine the safe loading capacity of both the ash fill and the sand stratum underlying it. From the results of these tests certain general deductions were made for various parts of the site in advance of knowledge of proposed structural loadings. These basic conclusions have been summarized by Messrs. Foster and Glick as follows:*

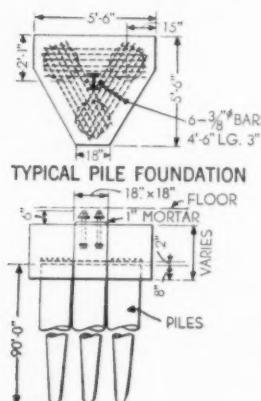
"(1) That spread foundations for heavier constructions should be confined to the areas previously loaded by large depths of ashes, and where, after final grading, a considerable depth of ashes remained over the underlying silt and clay.

"(2) That where loads were to be placed in recently filled areas, settlements of considerable magnitude could be expected, and where ash fill over the Meadow was shallow, loads should be limited to a maximum of 300 lb. per sq. ft.

"(3) That where structures were to be built, filling should be done prior to the construction of the foundations.

"(4) That grading, or modification of existing grades, should be limited to a 3 per cent slope where the fill of ashes was relatively thin over the original ground."

*Engineering News Record, September 22, 1938.

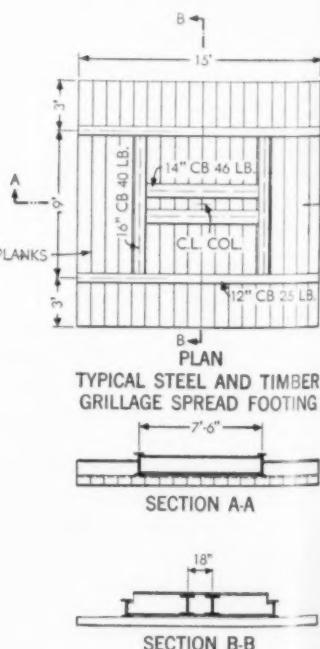


Three of the major types of footings evolved to meet the soil conditions at Fair site. A fourth, entirely of timber, showed wide variations.

The pile driving operations have been on an extremely large scale. At the present time over 470 miles of piles have been placed.

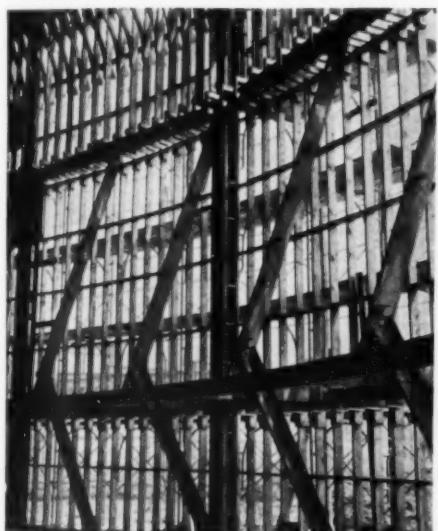
The actual driving of the piles under the conditions described—through meadow mat surface and semi-liquid silt to firm bearing sand—is very interesting. Where the ash fill is thin, a hole is punched in it by a steel "spud" which is then removed. The pile is lowered into this hole and the steam hammer placed on top of it. Even a light tap will drop the pile and hammer as much as forty feet as the pile passes through the silt. The pile meets resistance as it penetrates the underlying sand and this resistance increases until the desired bearing capacity is reached. It is also interesting to note that if the driving of a pile is discontinued at this point for only a limited period of time—often less than an hour—the pile is "frozen" in the silt and ash fill. It becomes difficult to start driving it again—often fifty blows not producing any increase in penetration. Maximum design loadings for piles average 18 tons. Test piles were loaded as high as 36 tons.

Lighter structures are supported on spread footings, particularly in areas of deep ash fill. Building settlements were anticipated and damage has been averted by providing joints to prevent cracking of stucco and walls. Settlement records of buildings confirm the design assumption cited above and continued experience on the site indicates that the foundation problems have been satisfactorily solved.

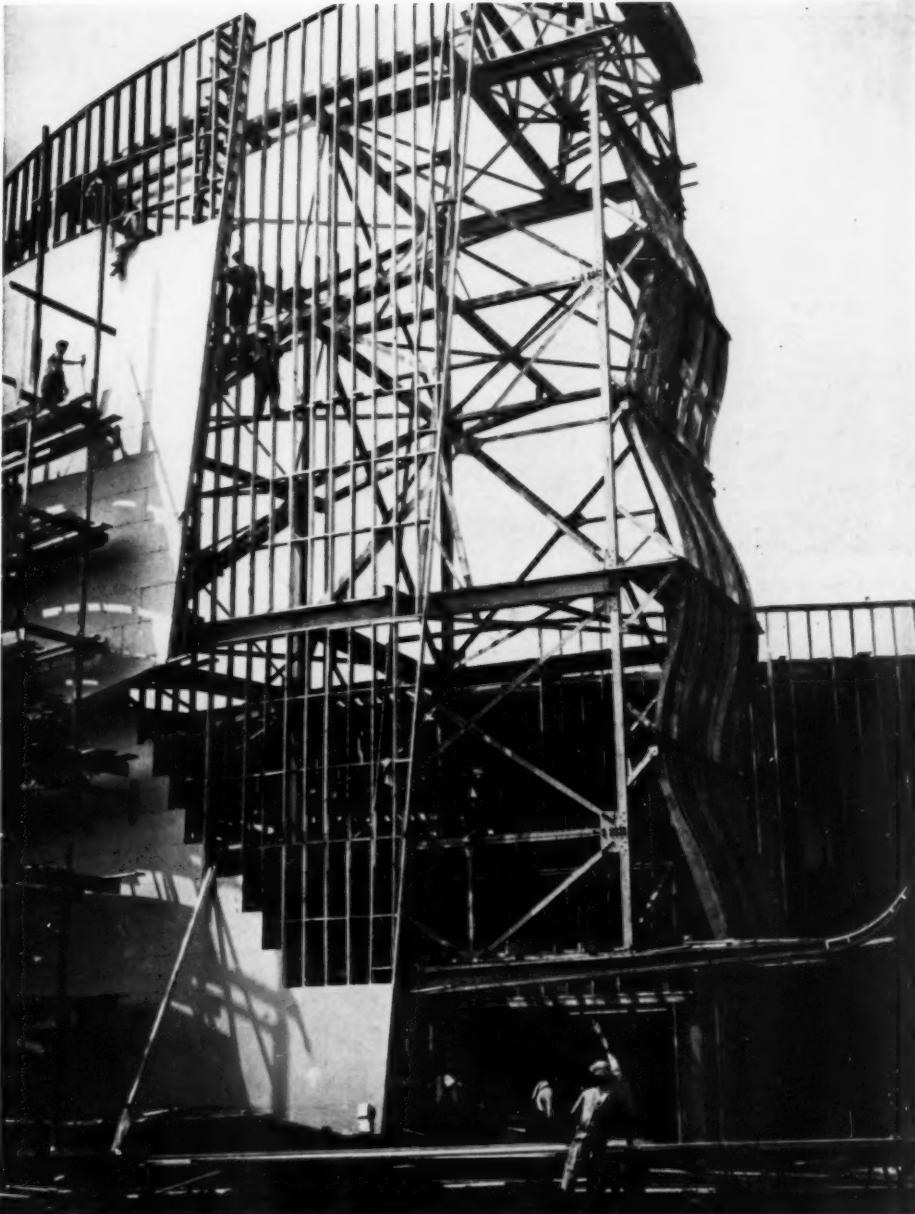




Steel framing, U. S. Government Building. Howard L. Cheney, architect.



Internal bracing, Consolidated Edison Corporation Building. Harrison and Fouilhoux, architects.



Steel framing, timber studs, and plasterboard. Main entrance, Hall of Pharmacy.

SUPERSTRUCTURE

IRVIN L. SCOTT*

WORLD'S FAIR Exhibit Buildings in general fall into two main categories: (1) Those designed and erected by the Fair Corporation itself for rental to prospective exhibitors, and (2) Those erected by private participants to house their individual exhibits. In the former group it was necessary that the design should be conceived along broad general lines to satisfy the then unknown specific needs of the greatest number

of exhibitors, whereas in the case of the exhibitor who elected to pitch his own tent, he was able to design his building around a pretty well determined type of exhibit. Fair-built buildings are, therefore, more or less standardized in plan as to depth of the exhibit space and circulation, and in elevation as to materials and absence of fenestration, for who could say what exhibitor would want windows and where?

Since the cost of the exhibit buildings has to be amortized, during the life of

*Chief architect, Construction Department, New York World's Fair 1939

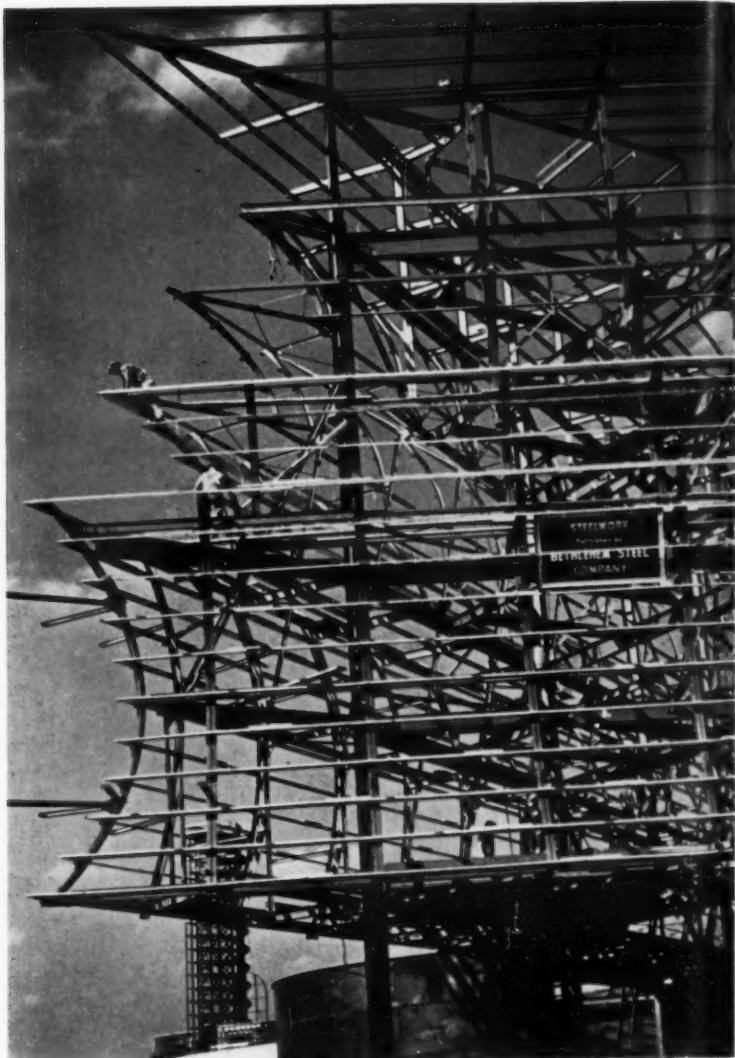
SUPERSTRUCTURE



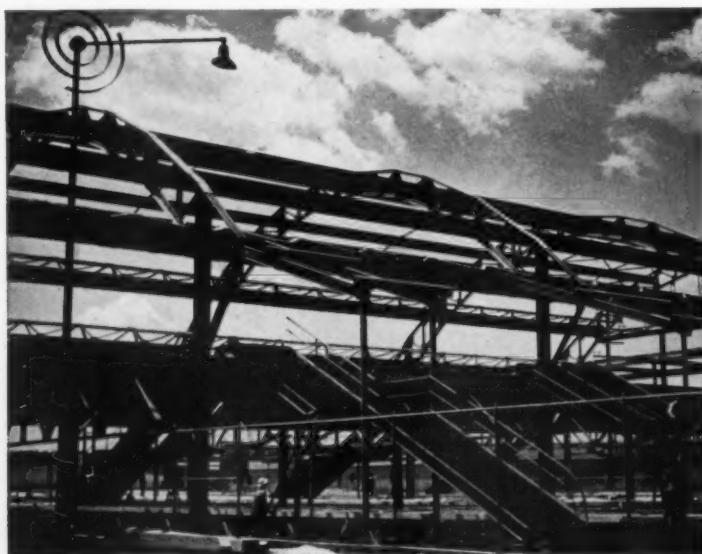
Aviation Building's solid-web arch trusses are swung into place.



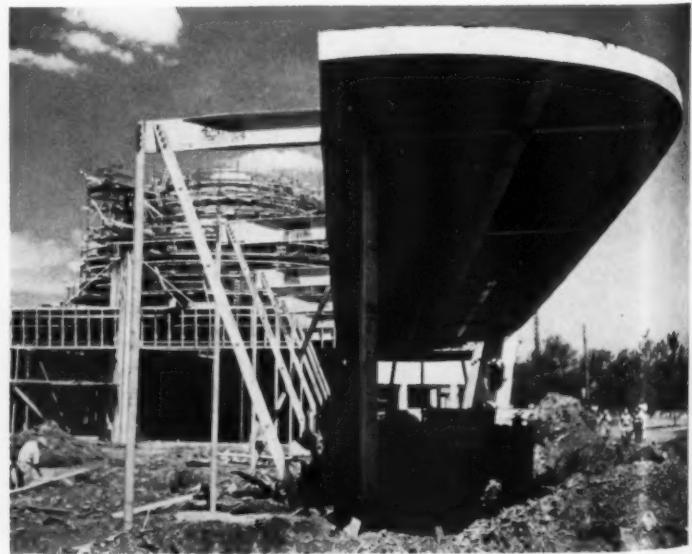
Wood templates in place on dome of Distilled Spirits Building, timber studding follows.



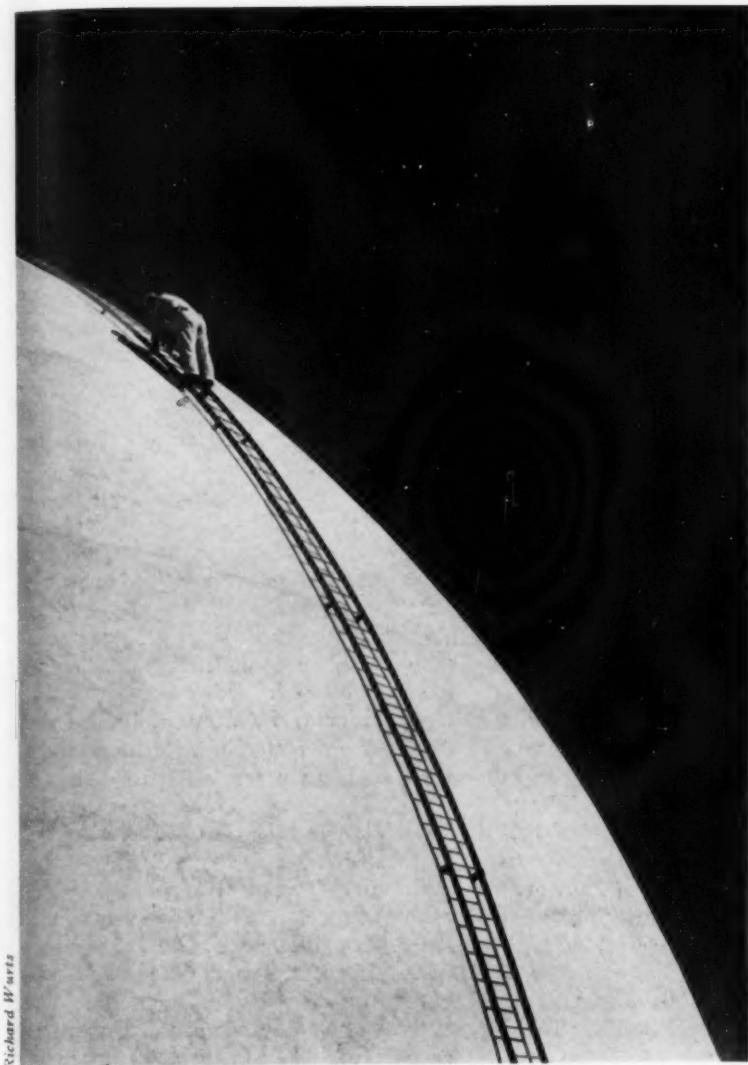
Special light steel framing on Petroleum Industry Building to accommodate exterior lighting design. Voorhees, Gmelin and Walker, architects.



Left: trusses of Long Island Station.



Right: cantilevered canopy, Distilled Spirits Building.



Richard Warren
Painting the dome, Food Building No. 1. Leonard M. Schultze and Archibald M. Brown, architects.

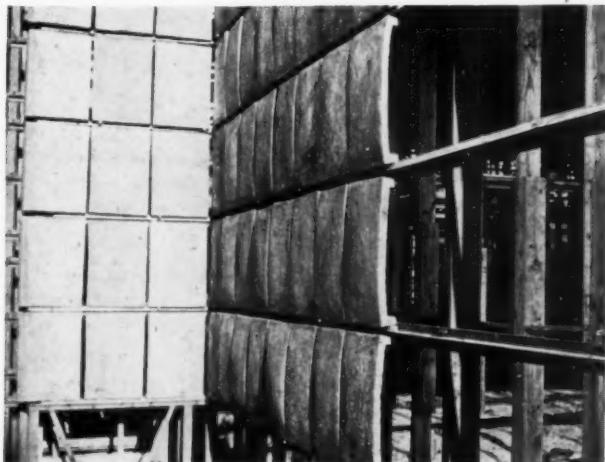
the Fair, by the sale of space to participants, it was necessary that careful analysis should be made as to what combination of materials for the superstructures should effect the maximum economy and produce the best architectural effect. Many types of structures were suggested and investigated, all the way from precast cellular concrete walls and roof, forming both the inner and outer "skin" to prefabricated sections of so-called "bird cage" construction, with stucco or gypsum board applied to the inner and outer surfaces. None of these, however, offered the necessary economy on the one hand, nor the flexibility required of expositional architecture on the other. The type of construction finally adopted was the light structural steel frame with curtain walls of gypsum board, wire lath and stucco on 2 x 6 in. studs between the supporting columns, and wood framing resting on trusses or

girders with sheathing and three-ply built-up roofing forming the roofs. By and large, this type of construction has been followed by the private exhibitor, either taking his cue from the analysis made by the Fair Corporation or from his own independent studies. However, in the programming of the Fair-constructed buildings, the skin covering of stucco was suggested but not made mandatory. Where the designing architect elected, he could suggest other exterior treatments provided they did not exceed the cost of stucco. As a result, there are such interesting deviations from the rule as the sand-blasted vertical red-wood siding on the Community Arts Building, and the corrugated V-beam sheets forming the outer skin of the Cosmetics Building.

Also in the private exhibit building of the A. T. & T., 3/16-in. asbestos boards in 4 x 8 ft. sheets have been applied with



Stucco on metal lath, Transportation Building. James Gamble Rogers, architect.

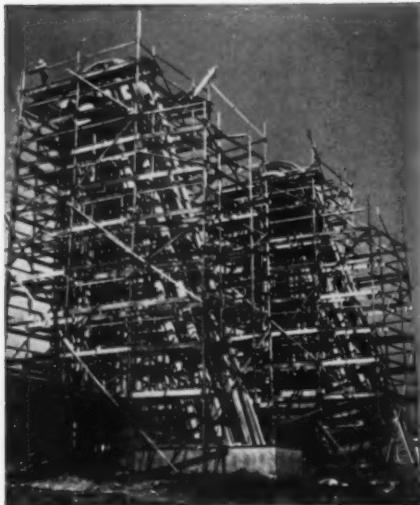


Tile plates, carried by steel angles and with mastic-filled joints, form external facing of Belgian Building. Van de Velde, Styren & Bourgeois, architects.

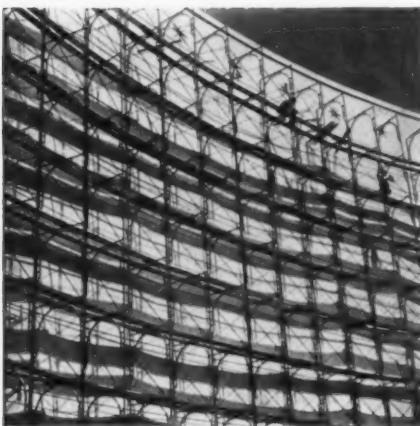
wide joints to the gypsum board backing, giving an interesting pattern that lends relief and variety to the general architectural effect.

It is a requirement of the Fair code that, in general, structural members be protected by a material having a fire resistive rating of at least $\frac{1}{2}$ hour. This naturally has ruled out the use of exposed steel as an architectural expression except in certain cases where a deviation from the Code could be justified or where no combustible materials were used in connection with the steel structure. An example of this is the main exhibit hall of the Aviation Building. Here the architects suggested spanning the hall with a series of three centered steel arches of increasing magnitude, tying these together with connecting beams and purlins. Quite naturally, fabrication cost ran high but this was offset by the fact that the protection

SUPERSTRUCTURE



Wood scaffolding on Transportation Building.



Lightweight, prefabricated steel scaffolding for Communications Building.



Wood sheathing on semisphere of Aviation Building.

from the weather is afforded by a single skin covering on the exterior of corrugated steel sheets protected with saturated felt and aluminum foil, leaving the well-designed steel arches exposed to view on the interiors.

This treatment exists "in reverse" in the case of the U. S. Steel Building. Here it was natural that the exhibitor would want to attract attention to his own product in the construction of his building. Accordingly, a smooth stainless steel "inner dome" is suspended on the inner chord of the main supporting steel arches which are left entirely exposed to view from the outside. Other lower elements of the building carry out the theme, the whole forming a fine expression of the use and function of steel.

From a point of view of fabrication, it is interesting to note the steel superstructure of the Belgian Building. Having been designed and fabricated abroad, it forms a graphic picture of the relative costs of labor and materials in Belgium as compared to this country. One is immediately struck with the use of small members throughout. Where in this country a steel member of large section would be used to cut down fabrication and erection cost, they choose to use several small members so fabricated as to perform the same function, with a resulting economy in material but with a large increase in man-hours of labor; a practice prohibitive here. Another feature of interest in this building is the skin covering of rough terra cotta tile approximately 2 in. thick, 18 in. wide, and 2 ft. long. These are supported directly on light horizontal steel members and pointed up with mortar after erection. Wood is used only as interior furring.

Perhaps the most novel type of construction to be seen anywhere on the site is that of the dome of one of the Food Buildings built by the Fair Corporation. The diameter exceeds 100 ft. and rises to a height of 90 ft. from grade. Its main structural members consist of vertical studs cut to radius from 3 x 14 in. wood members. Each tier of these was notched to receive a 3-in. pipe ring around the circumference. The next tier of studs were correspondingly notched to fit over this pipe ring and so on upward, the wood members and pipe rings diminishing as they near the top. The outer surface was then sheathed with diagonal wood sheathing after which felt roofing was applied. A broad meshwork of pencil rods was then laid over the dome to which was wired metal lath for the final

stucco skin. The inner surface of the dome was sheathed with gypsum board, making an entire thickness from inner to outer skin of not over fifteen inches.

Space does not here permit even a hasty reference to all the varied and interesting forms of construction to be seen at the site. No review, however, would be complete without a mention of the dominating architectural feature of the Fair, the Theme Center, composed of the Perisphere, Trylon, and Heliocline. Though based on the simplest of geometric forms, the structural difficulties of the Perisphere have seemed to increase as the square of its diameter. Here again, numerous were the suggestions as to how to construct it—"re-inforced concrete," welded steel plates, "bird-cage", and stucco, all were investigated and somewhere found wanting. In the end, the structural steel frame was adopted. In its final design, it consists of 32 meridian trusses, running from the zenith and connecting to a ring girder 8 ft. deep and 72 ft. in diameter near the base of the sphere, which is in turn supported by eight columns. Horizontal members connect the meridian trusses at various stages and the whole basic framework is overlaid with curved vertical purlins 4 ft. on centre at the equator, on which is applied the wood nailers for the final skin covering. This latter consists of two layers of gypsum board with staggered joints and a coat of waterproofing between each layer. On top of this are applied two layers of burlap successively trowelled into two $\frac{1}{4}$ -in. coats of a magnesite type of stucco, after which a final finish coat of magnesite plaster is applied and steel trowelled. Two coats of chlorinated rubber base paint will be applied for additional waterproofing and color.

The Trylon, rising 700 ft. from the bottom of its foundation, has a structural steel frame to a height of 500 ft. and from this point a self-supporting exterior sheathing of riveted steel plates. A skin covering similar to that of the Perisphere will be applied flush with these steel plates and the whole painted with rubber base paint.

The Heliocline, descending from the 50 foot level of the Trylon to grade and encircling the Perisphere is an 18-foot ramp supported on single tubular columns of varying sizes and spacing along the centre of its run. The soffit curves upward on either side to meet the deck and is covered with brushed stainless steel sheets studded with polished rivets. The balustrade will be of transparent wire glass.



LANDSCAPING

GILMORE D. CLARKE*

THE MEMBERS of the Board of Design met together for the first time late in May, 1936. The task before them was not a simple one, considering the fact that a theme and a general plan for a development were required within a period of three months. The site had been chosen. Even those who were familiar with it and who had had experience in large-scale construction operations had some difficulty in visualizing this vast ash dump and swamp developed into a great garden; a place where, a short three years later, millions of people would be entertained as guests of the City of New York through the New York World's Fair Corporation headed by Grover Whalen.

The development of the plan was carried on concurrently with the evolution of a Theme, the latter under the guidance of Board Member Robert D. Kohn.

Normally, a World's Fair plan is devised to serve a single purpose, that of a fair: this one, however, had to be designed to serve two purposes—first the Fair, and after the Fair a great park. The land the Fair occupies is owned by the City of New York and is under the jurisdiction of the Park Department. The lease gives the head of that Department, Robert Moses, control over certain factors in the development, among them approval of the general plan to the end that the basic pattern for the Fair would serve adequately for park purposes later.

One might think it impossible to lay out a satisfactory two-purpose pattern on a grand scale covering an area of 1,216½ acres; and that, to accomplish such a purpose would result in a compromise for one scheme to the other. It seems that the axial pattern developed within the first three months by the Board of Design admirably fulfills the

dual purpose for which the plan was devised. In any event, it pleased the Directors of the World's Fair and was approved by the Park Department.

The deep swamp, overlaid with a mat of cinders, presented problems which required much study and necessitated that the special factors relating to soil conditions be kept uppermost in mind throughout the development of the scheme. For example, the transportation sector, requiring the installation of heavy machinery, was located between Grand Central Parkway and 111th Street, the only section providing fairly solid ground with no underlying swamp.

The pattern of the Fair was laid out, having in mind the creation of a central Theme Center—the Perisphere and Trylon—with a number of theme subcenters around which the several major subdivisions of the Fair are being developed. The New York World's Fair was not conceived as a prototype of any other

*Member, Board of Design, New York World's Fair 1939



LANDSCAPING

GILMORE D. CLARKE

THE MEMBERS of the Board of Design met together for the first time late in May, 1936. The task before them was not a simple one, considering the fact that a theme and a general plan for a development were required within a period of three months. The site had been chosen. Even those who were familiar with it and who had had experience in large-scale construction operations had some difficulty in visualizing this vast ash dump and swamp developed into a great gathering place where almost three years later, millions of people would be entertained as guests of the City of New York through the New York World's Fair Corporation headed by George Widener.

The development of the plan was carried on concurrently with the evolution of a theme, the latter under the guidance of Board Member Robert D. Colvin.

* Member Board of Design, New York World's Fair 1939.

Normally, a World's Fair plan is devised to serve a single purpose, that of a fair. This one, however, had to be designed to serve two purposes, first the Fair, and after the Fair, a great park. The land the Fair occupies is owned by the City of New York and is under the jurisdiction of the Park Department. The basic give and take of that department, Federal Music control over certain factors in the development among them approval of the general plan by the end that the basic pattern for the Fair would also adequately fit park purposes later.

One might think it impossible to lay out a satisfactory two-purpose park on a grand scale covering an area of 1,600 acres and that to accomplish such a purpose would result in a compromise for one service to the other. It seems that the basic pattern nevertheless did this, since hardly do the Board of Design members itself, the

initial purpose for which the plan was devised. In any event, it pleased the trustees of the World's Fair, and was approved by the Park Department.

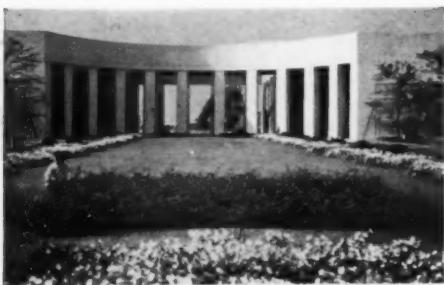
The deep swamp overlaid with a mass of crudely presented problems which required much study and necessitated that the specific factors relating to soil road, trees be kept uppermost in mind throughout the development of the scheme. For example, the transportation sector requiring the installation of heavy machinery was located between Central Parkway and 111th Street, the only sector providing fairly dry ground with no underflow swamp.

The pattern of the Fair was laid and owing to mind the creation of a central theme park, the Egyptian and Asian, with a number of fountains arranged around which the architectural monuments of the Fair are built. Within the New York World's Fair was no provision for a separate city plan.

LANDSCAPING



"American Womanhood",
Gaetano Cecere, Sculptor.



Gardens of New York City Building,
looking toward Business Systems and
Insurance Building. Eric Cugler, Slee and
Bryson, architects.



Spiral gardens, Court, Hall of Pharmacy.



Court of Communications Building.

pattern of a city or garden: true, it has a central axis along which a great mall has been developed. In that respect, it may have some relation to Versailles, or other French monumental compositions. If that is so, the park was evolved as a result of the functions and requirements of the Fair combined with the restrictions and advantages provided by the site. The principal asset is its location almost at the geographic center of the city, providing potentially adequate transportation services by water, rail and road. The visitor will easily find his way around on foot or by means of several types of vehicular transportation. There is no main entrance; rather, there are several entrances of more or less equal importance. Thus, the people are immediately decentralized upon arrival, resulting in a minimum of congestion.

Not a tree or bush was left upon the site when the grading operations had been completed. At the very beginning, when budgets were being discussed, the estimates to provide adequate planting amounted to more than \$1,500,000. A sum greater than that was granted and during the spring and fall of 1937 one of the largest big tree moving programs ever attempted was carried out. For example, elms in the Theme Circle have trunks more than eighteen inches in diameter, and the trees are sixty feet high. (The fact that the trees were planted two years in advance insures that they will be well acclimated before the opening day, April 30, 1939.) These and the thousands of other trees in great variety will supply the necessary shade for the malls and combine to create many delightful compositions with the architecture and its mural decorations, the sculpture, flags, and fountains—both in daylight and nightly splendor. All the large trees are in locations where they will grow on to maturity in the Flushing Meadow Park of tomorrow. They are mature now; they will grow to a ripe old age and give enjoyment to countless millions in years to come. And so these living reminders of the New York World's Fair of 1939 will be perpetuated for those who visit the park in later years.

The Fair will be a great, colorful garden of a magnitude never before realized in America. Almost three quarters of a million bedding plants will be used. The Holland Government has donated over one million flowering bulbs, the large majority, of course, being tulips. The display of these bulbs and bedding plants in carefully designed gardens will

be one of the most noteworthy displays of the Fair. It will demonstrate that the old art of bedding may be adapted to the present modern trends in architectural design and result in securing dramatic compositions of formal ground patterns in wide ranges of color in harmony with the gay colors of the architecture and the murals. Once more we shall use petunias, lantanas, annual phlox, verbenas, tagetes, heliotrope, ageratum, and geraniums by the thousands in mass display for dramatic color effects. Hedges of taxus, privet, laurel, thuja, hemlock, and other material are planted to form varied and fantastic effects.

The gardens and courts about the Theme Center and those along the main arteries of circulation were designed in the offices of the Board of Design. The bulb and flower displays were patterned and arranged by Miss M. B. Sprout. The courts and gardens provided by the Fair were designed by Landscape Architects A. F. Brinckerhoff and C. D. Lay. Mr. C. N. Lowrie is Landscape Architect for the large lake area between Horace Harding Boulevard and 69th Road. The several gardens of private exhibit buildings were planned by several landscape architects chosen by the exhibitors. Plans for these gardens received approval of the Board of Design before going forward, thus enabling the layout of the minor parts to be coordinated with the general scheme of the Fair.

The co-ordination of the various phases of the work at the Fair is a most noteworthy example of co-operation between many men and women of different professional fields of endeavor. A work of the magnitude of the New York World's Fair could not be a success without the closest kind of collaboration between the arts; of the arts with engineering, and of both of these with the manifold fields of endeavor which enter into this most complex work.

Enterprises of this sort often go along with the interesting personalities involved in it completely submerged. It is out of the question to mention here the names of all those who contributed so ably in the development of the design of the landscape of the Fair, but the writer cannot end this article without paying tribute to the man who had charge of the preparation of specifications, the purchase, inspection, delivery and planting of all the plant material, Mr. Henry Nye. It is the biggest job of its kind ever accomplished within a short two years.



Pedestrian overpass. Fair Board of Design: Michael L. Radoslovich and Arthur Barzaghi, designers.

CIRCULATION

STEPHEN F. VOORHEES*

WE CONSIDER, first, external circulation, the problem of getting people to the Fair Site. The Site is located near the center of population of Greater New York. It will be possible to reach it from any of the five-cent fare subway systems in the city. This was one of the factors which influenced the choice of the Site for the Fair. Both the I.R.T. and the B.M.T. use elevated tracks running from Queens Plaza to Main Street in Flushing. This track cuts the western end of the Fair Site and additions to the Willets Point Station are being built with an overpass to carry the people directly into the Exhibit Area. It is estimated that a peak load of 40,000 visitors per hour can be expected through this gate. On this side of the Fair also is the Long Island

Railroad which is also enlarging its facilities. A special station is under construction and it is estimated that some 18,000 passengers per hour will be brought from the Pennsylvania Station.

At the other side of the main exhibit area will be the terminus of a spur being constructed by the Independent Subway System. This station will discharge passengers into one of the principal plazas of the Amusement Area and facilities will be available for handling 40,000 persons per hour.

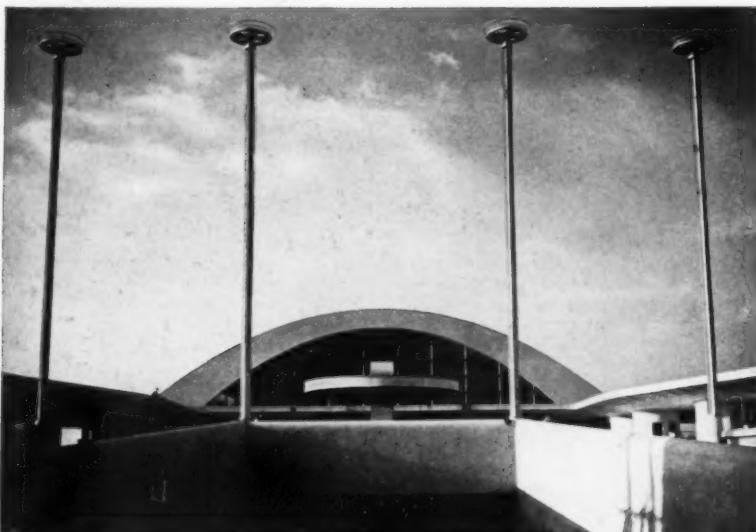
While these three means of transportation will bring the vast majority of visitors to the Fair, a not inconsiderable number will come by bus and private car. In cooperation with the Department of Parks and the Queens police officials carefully calculated routings for automobiles are being worked out. The Tri-

borough Bridge will lessen somewhat the load on the Queensboro Bridge, and the new Whitestone Bridge will be open in time to divide the traffic still more by providing a short cut for cars from New England and the North. On the Fair Site, but outside the turnstiles will be parking fields to accommodate a total of 40,000 cars. Private cars will discharge passengers at the gate on Horace Harding Boulevard and the Corona Gate. The Corona Gate on 111th Street will also be the entrance for passengers arriving by the various bus lines.

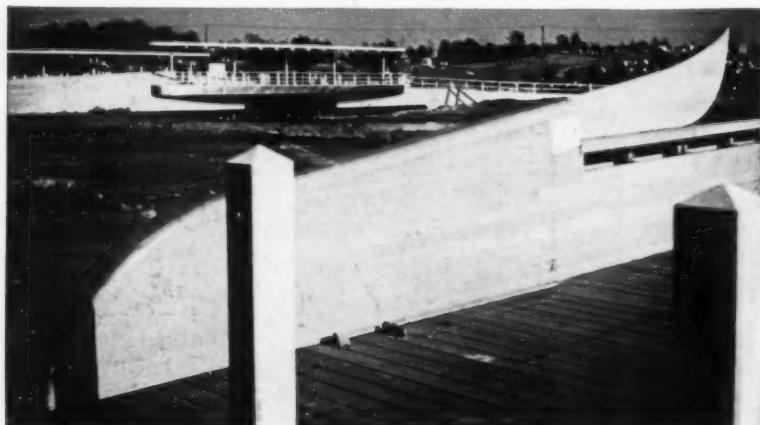
While the number of passengers expected is not large, it should be noted that facilities will exist for coming to the Fair by water. A boat basin and landing dock are being prepared on the edge of Flushing Bay adjacent to the Site. Also the North Beach airport is within five

*Chairman, Board of Design, New York World's Fair 1939

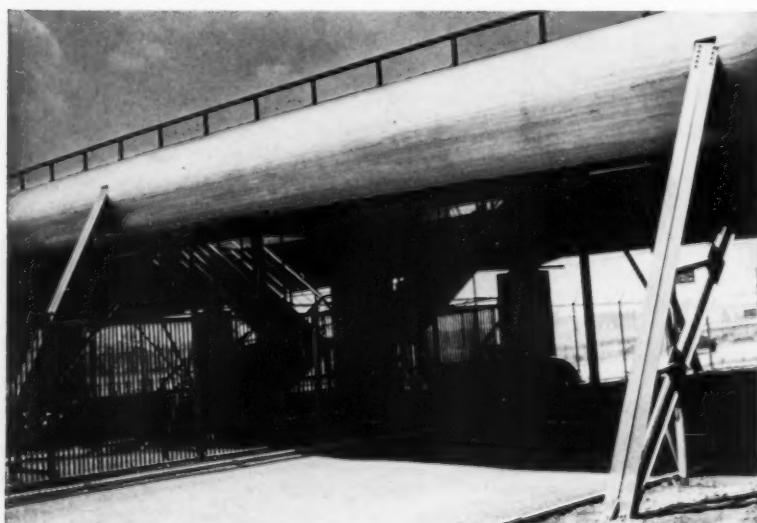
CIRCULATION



Approach ramps to Long Island Railroad Station. Fair Board of Design: Michael Radoslovich and Irwin L. Scott, designers.



Passenger bridge, Amusement Area. Fair Board of Design, architects.



Temporary pedestrian additions to permanent bridge at Horace Harding Blvd. Fair Board of Design: Michael L. Radoslovich and Arthur Barzaghi, designers.

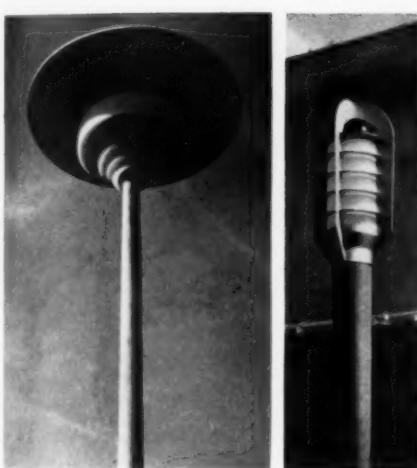
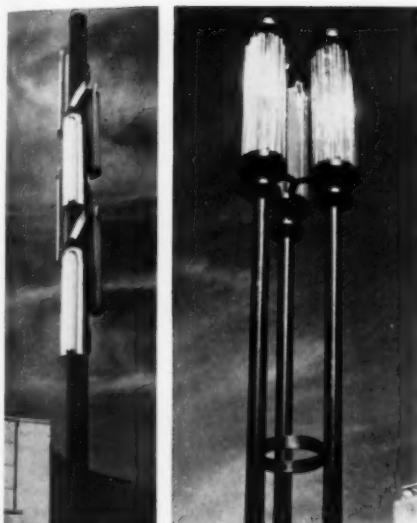
minutes' motor distance from the Fair Grounds.

Within the Fair, circulation has been planned, not to lead visitors through a pre-conceived logical scheme, but to make it as easy as possible for visitors to follow their own whims and interests. The logical arrangement that might be appropriate for a museum cannot be adapted to the purposes of a Fair where the crowds to be handled are much larger and the material to be shown is less subject to logical arrangement. The great objective in handling Fair crowds is to make it easy for visitors to find their way about, and to so arrange the various exhibits and attractions to spread the crowds over as large an area as possible. The Fair has been deliberately planned on a large scale. A generous amount of landscaped space is provided around both the Fair Corporations' buildings and those of the various exhibitors. The streets are wide and full advantage has been taken of the fact that after the Fair, the Site is to become a Park. Much of the planting for the future park is already done.

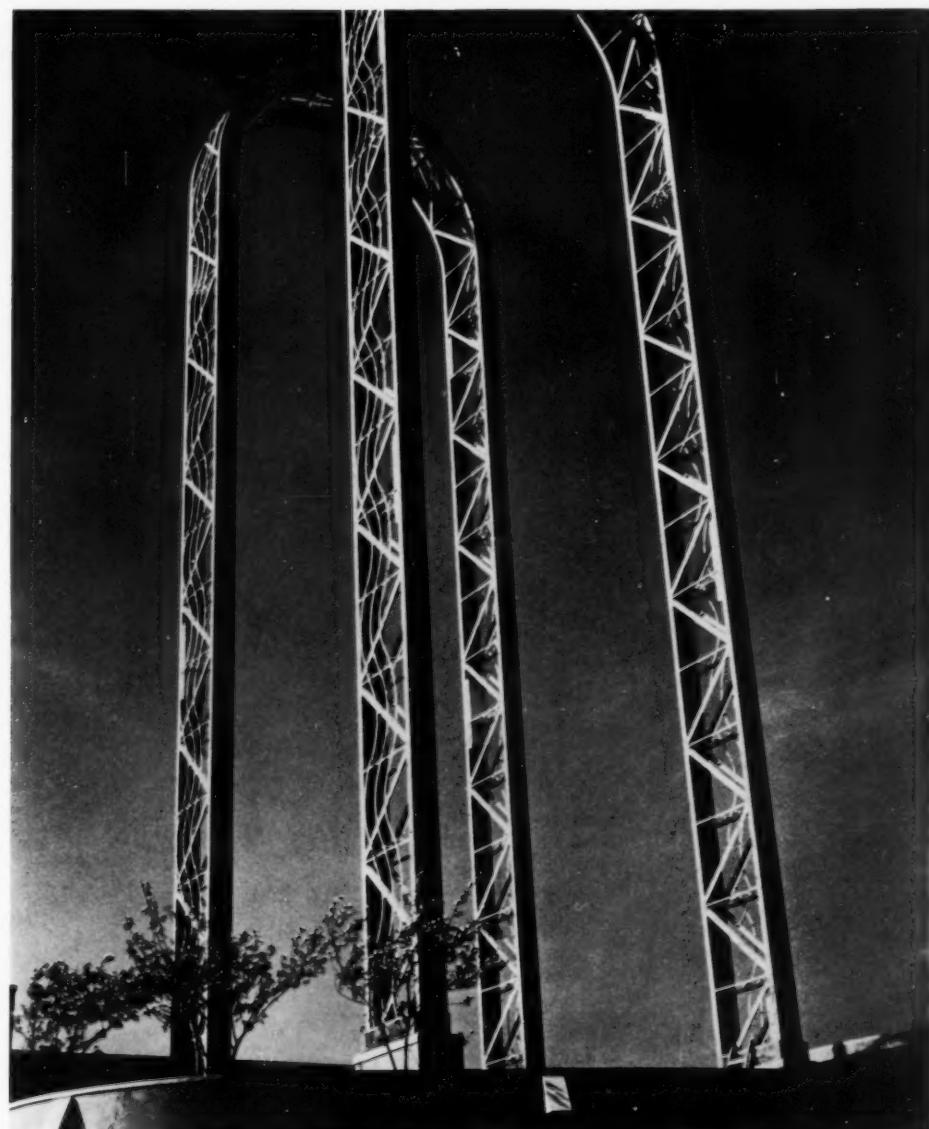
Each of the principal gates leads directly into an open plaza and each plaza has several attractive vistas. Thus, entering crowds will be spread through adjacent exhibit areas rather than guided along single paths. The visitors will be assisted in orienting themselves by several conspicuous monuments which will help them identify various gates and important buildings. The chief of these, of course, is the Trylon and Perisphere which occupy the Theme Center, the highest point on the Fair Site. Free-standing towers and pylons at various other points combined with available maps will enable people to find their way about the grounds easily.

A concession contract has been awarded to the Greyhound Bus Lines for an intramural bus system covering the whole Fair. Bus routes are planned to avoid pedestrian crossings as much as possible and at no point will pedestrian and bus traffic be routed together. Arrangements are now being discussed for some form of transportation for individuals.

Nearly all of the exhibit space in buildings by the Fair Corporation will be on one level and very few of the exhibitors who are building their own buildings are planning for more than one floor. Thus stairs will be a rarity—changes of level where they do occur will be accomplished by ramps.



Above, four light standards. Fair Board of Design, architects. Right, light towers, Textiles Building.



LIGHTING

STEPHEN F. VOORHEES

LIGHT AS WELL as sound will be controlled in the interest of visitors to the Fair. All possible cooperation has been given to the various exhibitors to enable them to make advantageous use of lighting effects but within rules which prevent annoyance to the public and unfairly competitive displays. The use of lighting effects by any exhibitor, for example, which would detract from the effect of neighboring exhibits is forbidden. Decisions on such questions rest with the Fair's Board of Design and its lighting technicians.

The Fair itself, as is the case in the field of sound, is using the most advanced developments to create novel and beautiful effects. An example is the use

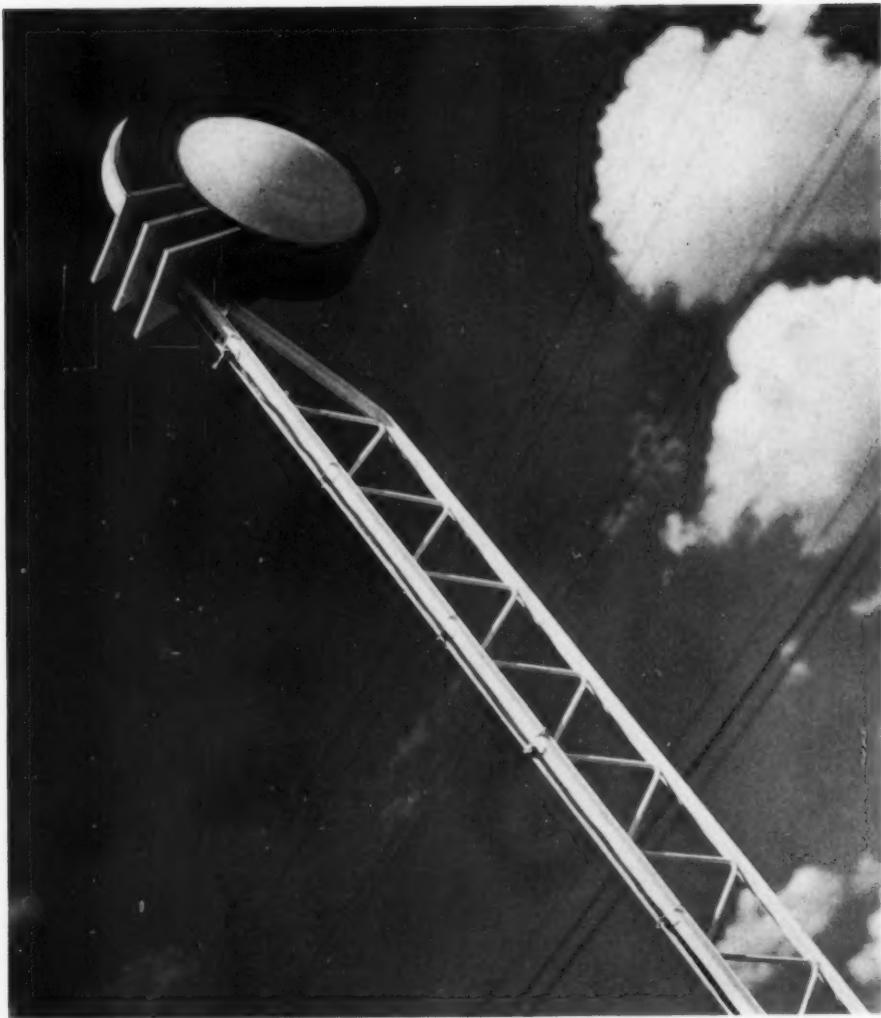
of the new source of light, the capillary mercury tube. Light from these tubes is picked up by the green coloring matter in foliage. A dramatic and interesting effect will be created along the main esplanade by illuminating the trees from beneath with this type of light.

The great sphere of the Theme Building, white and opaque by day, will at night seem to lose its solidity. Lighting effects which have been evolved during two years of research by the Fair's technicians will give the sphere the appearance of a huge luminous globe like an iridescent soap bubble filled with moving clouds and color mist. The Perisphere is one focus in the gigantic display of light and color which will animate the

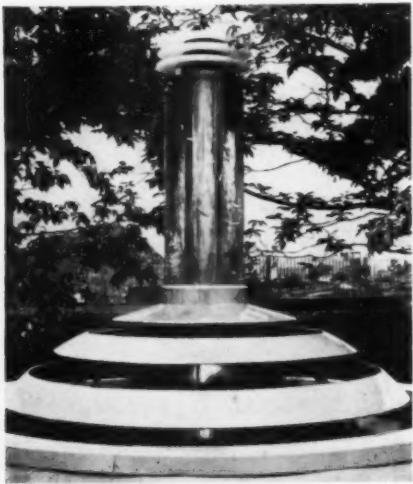


Light tower, Information Booth. Fair Board of Design, architects.

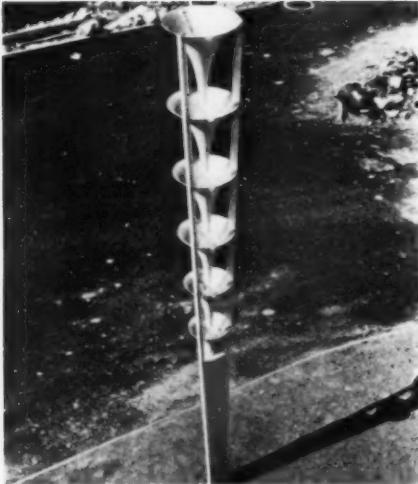
LIGHT



Light fixture. Fair Board of Design, architects.



Aqualon, combination light fixture and fountain. Fair Board of Design, architects.



Indirect lighting fixture, using conventional incandescent lamps. Fair Board of Design, architects.

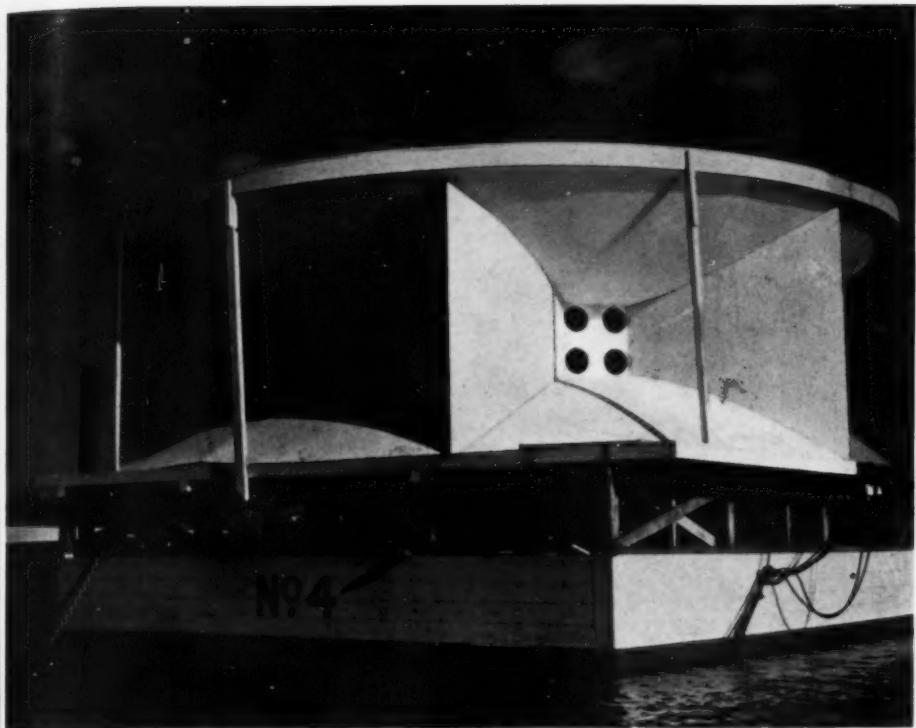
Fair at night. At the other end of the Mall will be the body of water named the Lagoon of Nations, approximately 800 ft. long and 400 ft. wide. This Lagoon will be the scene of displays combining light, sound, and color in a way never before attempted. In the center of the Lagoon is a submerged platform nearly 400 ft. long and 150 ft. wide. On it are mounted over 1,400 water nozzles, 400 gas nozzles, containers for fireworks, and 500 lighting units with various types of lamps and apparatus for color changes. This equipment is partly submerged; the parts above water are camouflaged in the appearance of water flowers or formal decorative shapes. Camouflaged to the likeness of huge flowers will be the openings of the sound projectors mentioned above. Each of the elements will be controlled from a single room on the roof of one of the government buildings. Here a board resembling a huge organ console will be operated by three men and a director. A number of compositions for this great instrument are in preparation.

Other dramatic effects are in preparation for Meadow Lake which lies south of the amusement section of the Fair. Here, from barges which can be moved about in the lake to vary the pattern, more compositions using water and light will be created.

Some measure of the effectiveness of these spectacles can be found in the fact that when a model was set up to demonstrate them in miniature, so many showings became necessary that the model finally had to be dismantled.



Zeon lighting on Information Booth. Fair Board of Design, architects.



One of the floating amplifiers "anchored" offshore on Meadow Lake to be used in conjunction with water carnivals.

S O U N D

STEPHEN F. VOORHEES

SOUND WILL be controlled by the Fair in the interests of visitors to a greater extent than has been done in most of the recent fairs. The Corporation itself is avoiding any use of either light or sound which could conceivably become annoying to visitors and is enforcing the same principle on the private exhibitors. This means first of all that the Fair Grounds will not be dotted with loud speakers as was the case in some of the recent fairs. The visitor will not have the feeling of wishing to turn off a neighbor's radio as he walks about among the exhibit buildings; and within the buildings, the use of sound by each exhibitor will be restricted to prevent people in other exhibits being distracted. In other words, both the Fair Corporation itself and the various exhibitors will use sound only in two ways—first as a background to create atmosphere, and as a part of an artistic presentation to the public. The traditional barkers standing before exhibits competing with each other will be entirely absent and even the more mod-

ern version of the same scene in which competing loud speakers blare at passers-by will be absent.

The Fair will have, however, a comprehensive sound system. It will be centered in a specially reserved section of the Communications Building. Here the amplifiers and technical equipment of the sound system will be set up as an exhibit by the Fair Corporation. There will be small studios where speeches and musical programs can originate either for broadcast or for the Fair's Public Address system. Here also will be a Fair sponsored exhibit of sound equipment and provision for explaining to the public the detail operation of a large example of modern sound engineering.

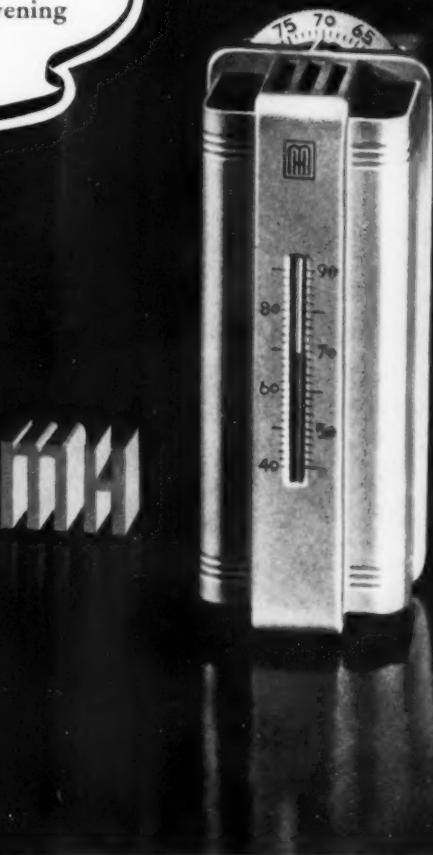
Carried on the wires of the regular telephone system the programs will be sent to sixteen speakers or sound outlets. There will be one inside each of the main entrances to the Fair to give incoming visitors a feeling of the festive spirit that should characterize a Fair. There will be other speakers at strategic

points on the grounds—one on each of the bridges connecting the transportation area with the main exhibit section and one in the main plaza of the amusement section. These will aid in leading crowds from one area to another.

This Public Address system will be built from stock equipment and will be a more or less standard example of modern methods of handling sound. Of more spectacular interest will be the specially designed equipment installed for particular purposes at the Fair. Among the spectacles presented by the Fair Corporation will be the shows combining water, fire, and sound on the Lagoon of Nations. Combined with the dramatic use of gas jets, fountains, and fireworks will be sound effects and especially composed music emanating from sound reproducing equipment especially designed for this purpose. All the equipment, from the records through the various amplifying devices to the loud speakers is being created by the most competent sound engineers especially for this purpose. The speakers will send out sound of a lower frequency than is possible from any standard equipment and will be capable of delivering an enormous volume of sound.

Perhaps the most spectacular of the Fair's special sound equipment is that which is being built under the Perisphere. The engineers in discussing the possibilities of music and sound effects around the Theme Plaza discovered that the curve of the Perisphere constitutes a very rough approximation of the horn of a loud speaker. To make this approximation more complete, a pit roughly fifteen feet deep, is dug under the sphere—its walls are of a shape calculated to simulate a section of a horn. In effect the lower half of the sphere, the surface of the water under it, and the walls of the pit will constitute an enormous annular horn. Sound originating under the sphere will spread out in all directions except into the interior of the sphere which will be protected by sound proofing material. These shapes will form the equivalent of a horn whose mouth is over 100 ft. in diameter and whose length is well over 100 ft. The designers of this sound system are certain that vibrations down to sixteen cycles a second can easily be created. This will give an effect in the open air similar to that caused in cathedrals by the vibrations of sixteen-foot pipes. This will be, in other words, far and away, the largest loud speaker ever created and will assure effects never before attempted.

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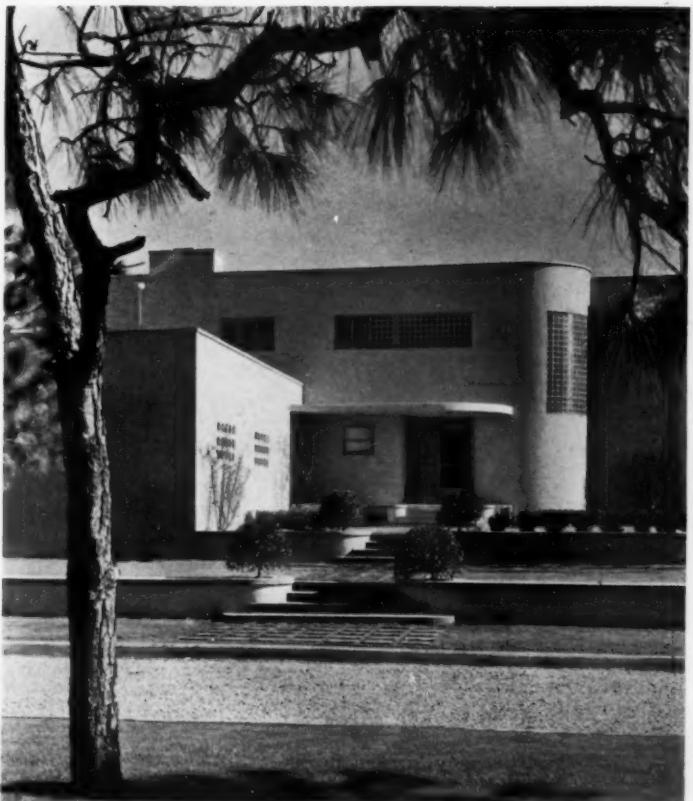
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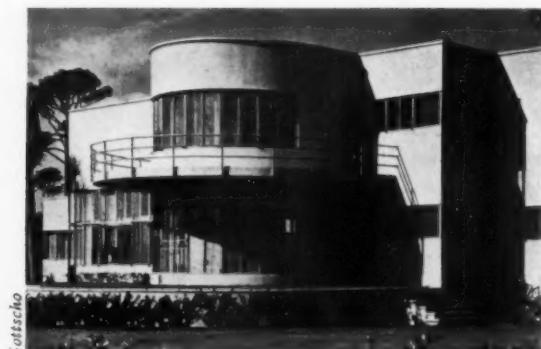
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—September; Hospitals—August; Theatres—July; Factories—June; Schools
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Gottschalk



Gottschalk

Seven houses, illustrations of which suggest the widely varying influence of climate, site, construction, and personal interests of the owner on residential design. . . . Results of the "modern" and "traditional" approach to specific problems of design are comparatively reported by details of the house at Sea Island, Georgia, designed by Francis Louis Abreu (see opposite page) . . . and those of a house at Oyster Bay, New York, for which Kimball & Husted were architects (see page 113). . . .

The remaining houses include: A residence in Great Neck, New York, (page 119) which makes full use of modern equipment and materials to produce a livable, comfortable home. Hans N. Wormann was the architect. . . . A residence in Los Angeles (page 123), constructed of adobe and concrete, Gardner A. Dailey, architect. . . . A residence near Asheville, N. C., (page 126) situated to take advantage of excellent views, Henry Irven Gaines, architect. . . . An estate near Mentor, Ohio, (page 128), Charles Bacon Rowley, architect. . . . A house in New Canaan, Conn. (page 130), Robertson Ward, architect. . . .

TIME-SAVER STANDARDS DATA



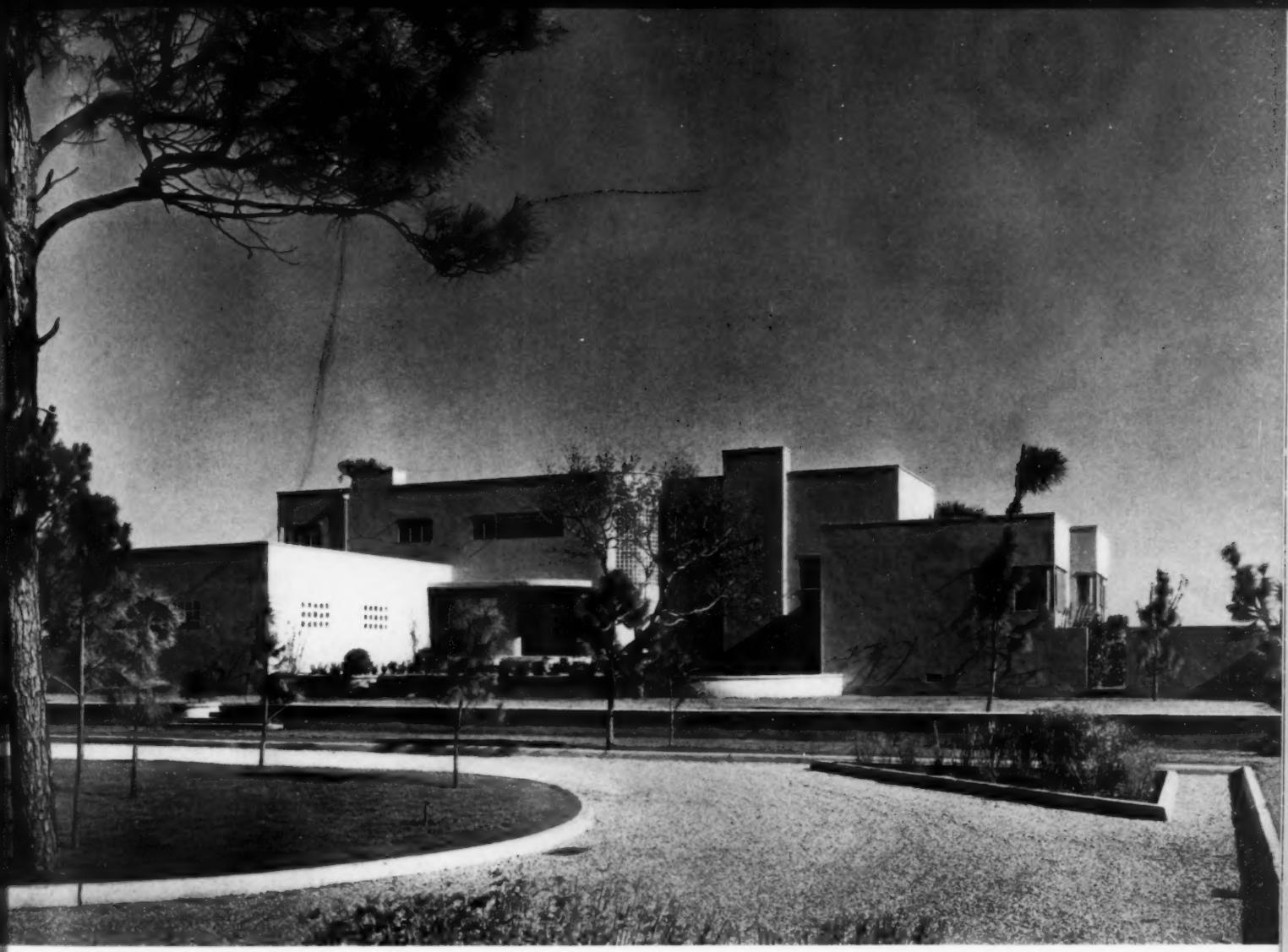
R. B. Churchill



John Gass

"Details for Indoor Living Areas"—drawings, photographs, and descriptive notes—show how designers in different sections of the country have developed units of built-in furniture which are centers of activity within various living areas. Living-room (page 133) in a residence at Great Neck, New York, Hans N. Wormann, architect and interior designer. . . . Breakfast room (page 134) in a residence at Kansas City, Mo., Kem Weber, interior designer. . . . Child's room (page 135) in a residence at Washington, D. C., Eugene Schoen and Sons, architects and interior designers. . . . Two bedrooms (page 136), the first in a residence at Elmsford, N. Y., Joseph Aronson, designer; the second in a residence at Washington, D. C., also by Eugene Schoen and Sons. . . .

"Outdoor Living Areas"—continuing the series of Time-Saver Standards on construction of outdoor units, data for which were furnished by Albert D. Taylor, Landscape Architect and President of the American Society of Landscape Architects: Wall Construction (page 137) . . . Pool Construction (page 138) . . . Pool Piping (page 139) . . . Step and Ramp Construction (page 140). . . .



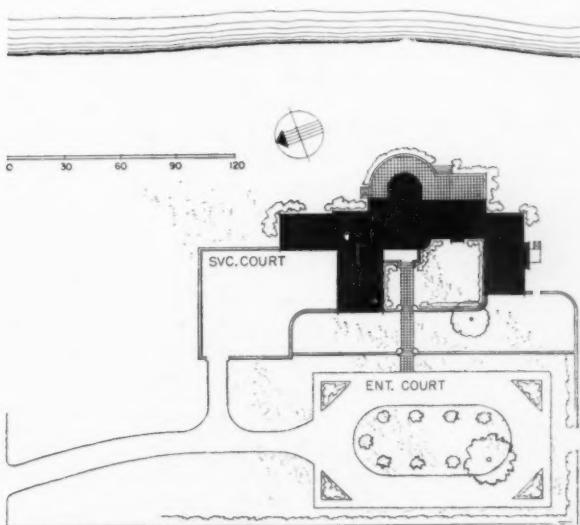
SEA ISLAND, GEORGIA: Residence for Miss Judy King

FRANCIS LOUIS ABREU
Architect

ACCORDING TO the architect, "The problem in this case was that of adapting a house to a flat lot, facing the Atlantic Ocean, and in doing so to take full advantage of the best views and to locate the rooms in such a manner as to make use of the prevailing eastern and southern breezes—the house to have ample accommodations for the entertainment of guests, who would indulge in many types of sports with the change of seasons.

"The house was to harmonize well with the gray beach sands, to keep the feeling of the horizontal lines of shore and horizon, and to express the idea of the 'outdoors' in each of the rooms.

"The house is painted in two tones of gray, the darker gray on windows and doors—all about a shade or two darker than wet sand."



SEA ISLAND, GEORGIA

Residence for Miss Judy King

Detail of front entrance; the grass-patterned walk is typical of all living-terrace surfaces. The landscape architect was T. M. Baumgardner.



Photos by Gratzschel

MATERIALS AND EQUIPMENT

FOUNDATION

Reinforced concrete walls, 12" thick; reinforced concrete spread footings

STRUCTURE

Reinforced concrete and structural clay tile

EXTERIOR

Walls: Load-bearing clay tile, 12" thick; reinforced concrete lintels, bands, etc.; stucco, Portland cement

Sash: Steel casements, Hope's Windows, Inc.; bronze screens; glazing, Pittsburgh Plate Glass Co.

Roof: Built-up, twenty-year bonded composition and gravel; promenade tile; sheet metal, copper

Insulation: Mineral wool batts, 3" thick, over all ceilings

Painting: Walls sand color; trim darker

INTERIOR

Floors: Structural-steel bar joists; concrete floors; rubber tile finish, Goodyear Tire and Rubber Co., Inc.

Partitions: Clay partition tile, 4", plastered; exterior walls furred, "Simp-L-On" system, Simplon Products Corp., metal lathed and plastered; bathroom, glass tile, "Vitrolite", Libbey-Owens-Ford Glass Co.

Sills and trim: Window sills of slate and local "Coquina" stone; trim, stock metal, "Coquina" stone; metal door bucks, Kalman Steel Corp.

Cost: approx. 55¢ per cu. ft.

EQUIPMENT

Heating: Hot-water system; oil-burning boiler; concealed radiators, "Modine", Modine Manufacturing Co.

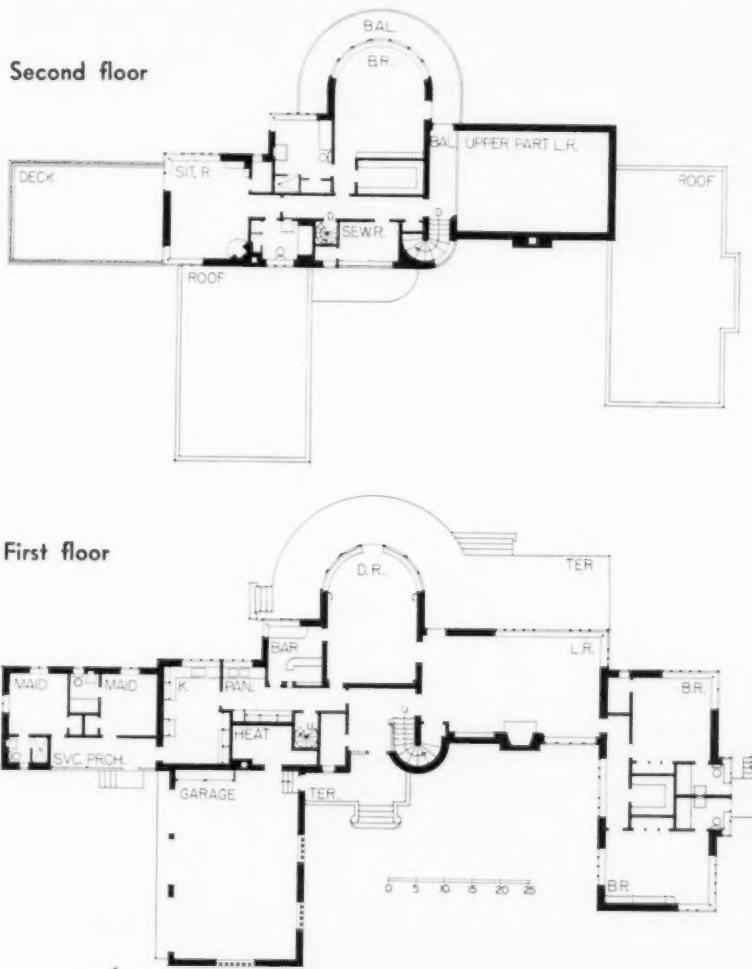
Plumbing: Piping, copper tubing, "Streamline"; fixtures, "Neuvogue", Crane Co.

Electrical: Wiring, conduit, General Electric lighting fixtures, mostly concealed strip lights, "Lumiline", Curtis Lighting, Inc.; annunciator stations in all rooms

Kitchen: Cabinets, steel; sinks and counter tops, Monel metal; refrigerators, Frigidaire Div., General Motors Sales Corp., and Frederich; electric range, General Electric



Above, the ocean front of the house. The semi-circular bay commands wide views up and down the shore line; living and dining rooms are grouped in the southeast end to take advantage of prevailing winds. In the first floor plan at the right, notice particularly the location of the bar; and the outside entrances, for bathers, into the guest-room baths.



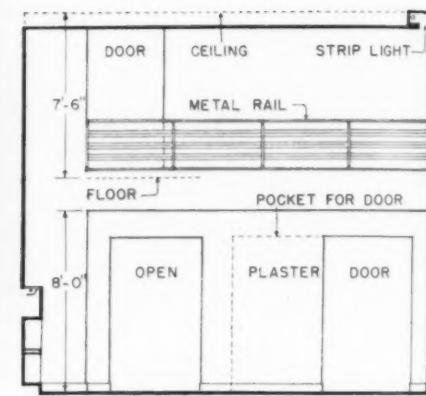
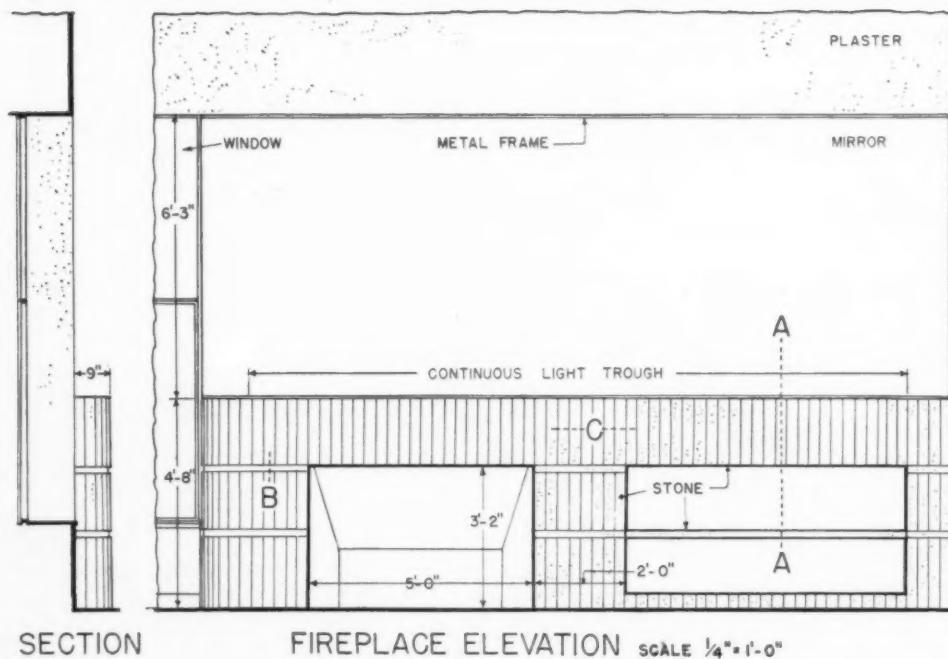


Photos by Gottscho

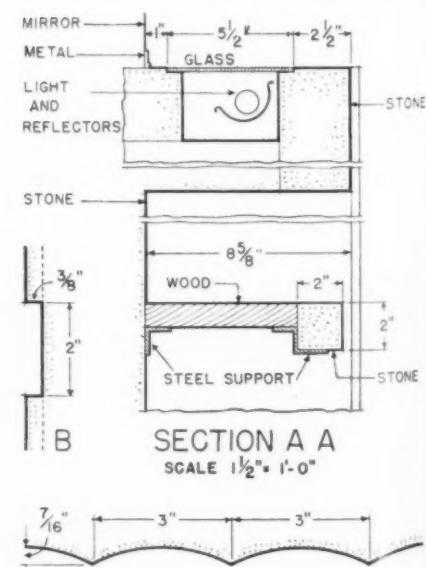
SEA ISLAND, GEORGIA

Residence for Miss Judy King

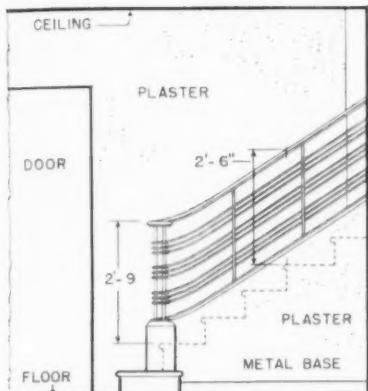
The living-room faces the beach; terrace and windows overlooking the ocean can be seen reflected in the overmantel, which is a tan mirror. Plaster walls are painted warm beige; the floor is deep brown; the rug and upholstery are rough textured. All interiors are by Virginia Conner, Inc., who also designed the furniture. Architectural details of the living room are shown below.



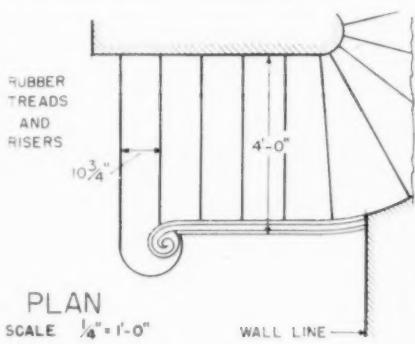
END OF LIVING RM. SCALE $\frac{1}{8}'' = 1'-0''$



SECTION C SCALE $1\frac{1}{2}'' = 1'-0''$

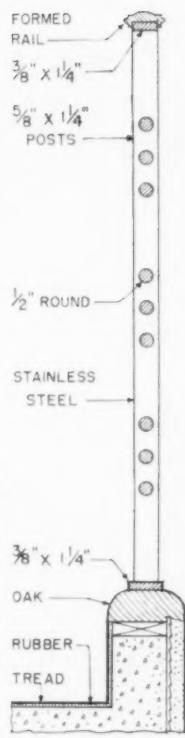


ELEVATION SCALE $\frac{1}{4}$ " = 1'-0"



PLAN

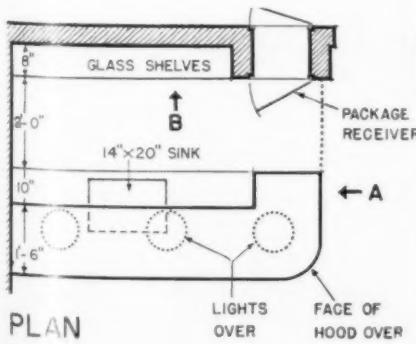
SCALE $\frac{1}{4}$ " = 1'-0"



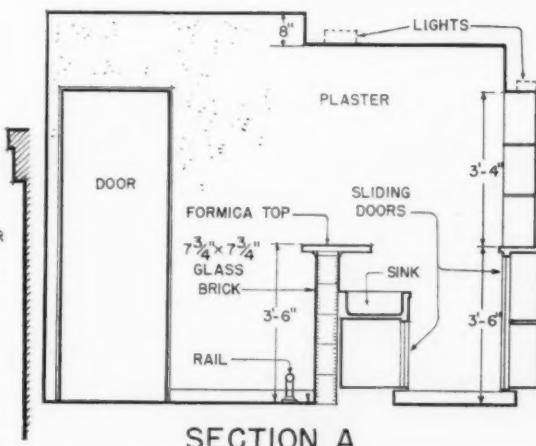
RAIL DETAIL SCALE $1\frac{1}{2}$ " = 1'-0"



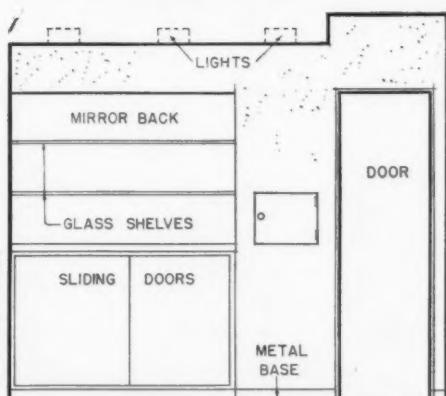
Drawings and photograph above show stair details. Two photographs and drawings below show bar details; in addition to the combination air-conditioning and lighting outlets over the bar, coved strip lights, similar to those in other rooms, furnish general illumination.



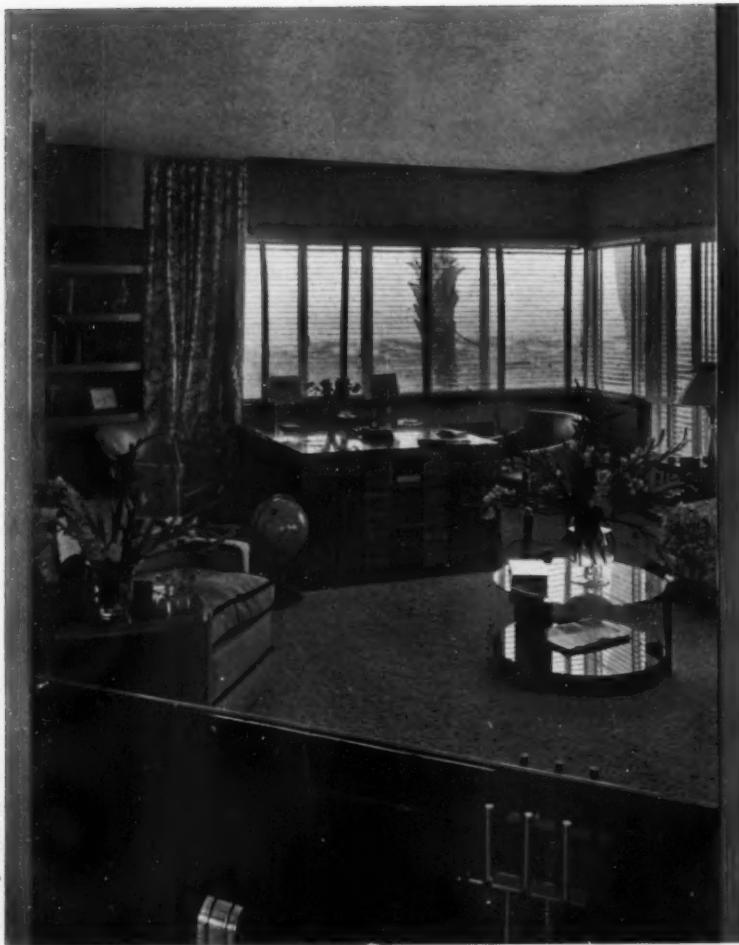
PLAN



SECTION A



SECTION B



SEA ISLAND, GEORGIA

Residence for Miss Judy King

Second-floor suite: at left, the sitting room, reflected in the overmantel mirror; below, the bedroom. In the latter, the floor is deep blue rubber, the walls painted "bois de rose", tables crystal, and the bed and curved chaise longue are ice-blue damask.



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OYSTER BAY, NEW YORK: Residence for A. M. White, Jr.

KIMBALL & HUSTED
Architects

RICHARD A. KIMBALL, of the firm of Kimball & Husted, states:

"The problem in locating the house was to give a maximum amount of sun to the living portion, and to make use of desirable views from the living room, library, and owner's bedroom.

"Grade conditions enabled us to drop the garage floor and service court out of sight, half a story below the entrance court, and to give the living room more height than the other first-story rooms.

"A small building in which Walt Whitman had at one time taught school was moved to the site by the owner and incorporated in the group, the garage balancing it to form the entrance court.

"Roof and court drainage was very simply disposed of at grade on the wooded slope southwest of the house. The well was so located on this slope that it was possible to conceal the pump house completely in the bank."



BUILDING
TYPES

113



Photos by Gatischo

First floor



Second floor



Third floor





Above, left, library bay window and garden entrance; right, service portion, showing the covered connection between house and garage, and the service court dropped lower than the remainder of the grounds.

MR. KIMBALL further says: "A three-car garage, connected to the house, was required. It was suggested that space over the garage be used for future servants' rooms. It was also felt desirable to have the possibility in the future of one or two more master bedrooms and bath; these serve at present as a 'rainy day' children's play-room, and master's study.

"The property was high, partially wooded land, without water or any outside services. In general, the T-shaped plan permitted cross-ventilation in all important first-story rooms and in the owner's bedroom.

"A porch off the living-room offers protected outdoor sitting. Its flagstone floor extends out into a sunken terrace for sunny outdoor sitting. The second story of the porch is intended for sleeping and is equipped with screens and rolling shutters."

MATERIALS AND EQUIPMENT

FOUNDATION

Concrete

STRUCTURE

Wood frame, brick veneered

EXTERIOR

Walls: Brick veneer; brick, Post Brick Co.; front entrance, brick specially moulded to detail

Sash: Wood, double hung; bronze screens; special steel sash, dining porch, Lundell-Eckberg Mfg. Co., with bronze operators, H. S. Getty & Co., Inc.

Roof: Wood frame and sheathing; slate surface, "Bangor Medium", Bangor Slate Co.

INTERIOR

Floors: Oak plank in living portion, first floor; linoleum in service portions, first-floor lavatory and second-floor guest

bath, Armstrong's and Seaflex; canvas in sleeping porch

Walls: Stud frame, plastered and painted generally

Ceilings: Plaster, painted

Trim: Specially milled, wood; library, knotty pine

Painting: Lead and oil; doors mahogany, walls off-white, trim white

EQUIPMENT

Heating: Boiler, "Capital", United States Radiator Corp.; radiation, "Capital Fin-cast", United States Radiator Corp.; oil burner, Petro-Nokol; humidifier, "Zephyr"; motorized valves and thermostat, Minneapolis-Honeywell Regulator Co.

Plumbing: Fixtures: Crane Co.; pantry sink, Tracy Mfg. Co.; bathroom accessories, Charles Parker Co.

Kitchen: Cabinets, Janes & Kirtland, Inc.; range, American Gas Association

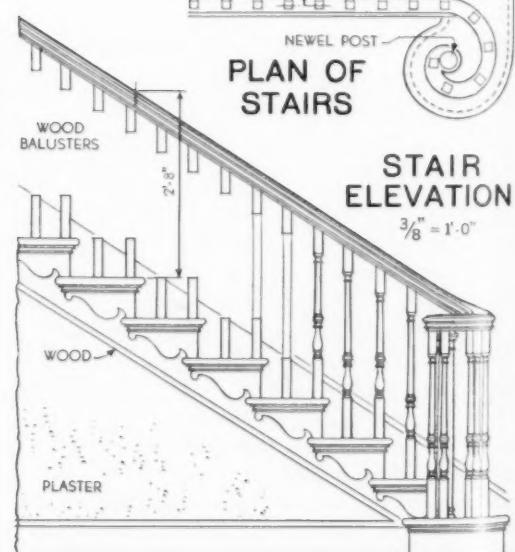
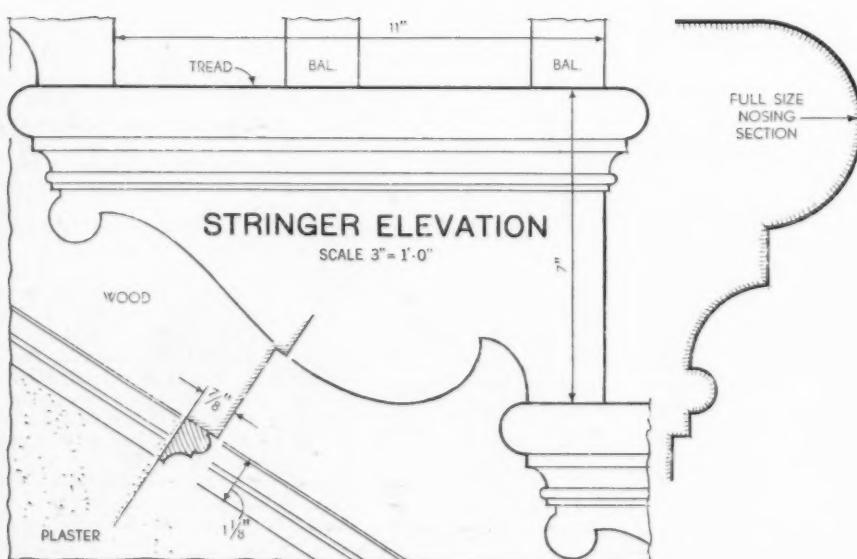
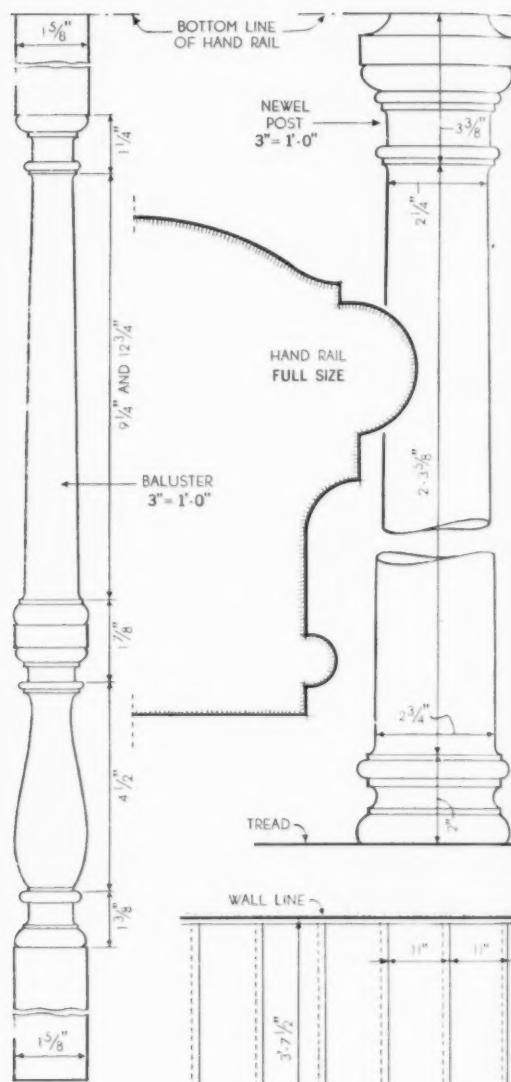
Radio: Remote control, Cepehart, Inc.

Cost (construction only, excluding fees): 45¢ per cu. ft. -

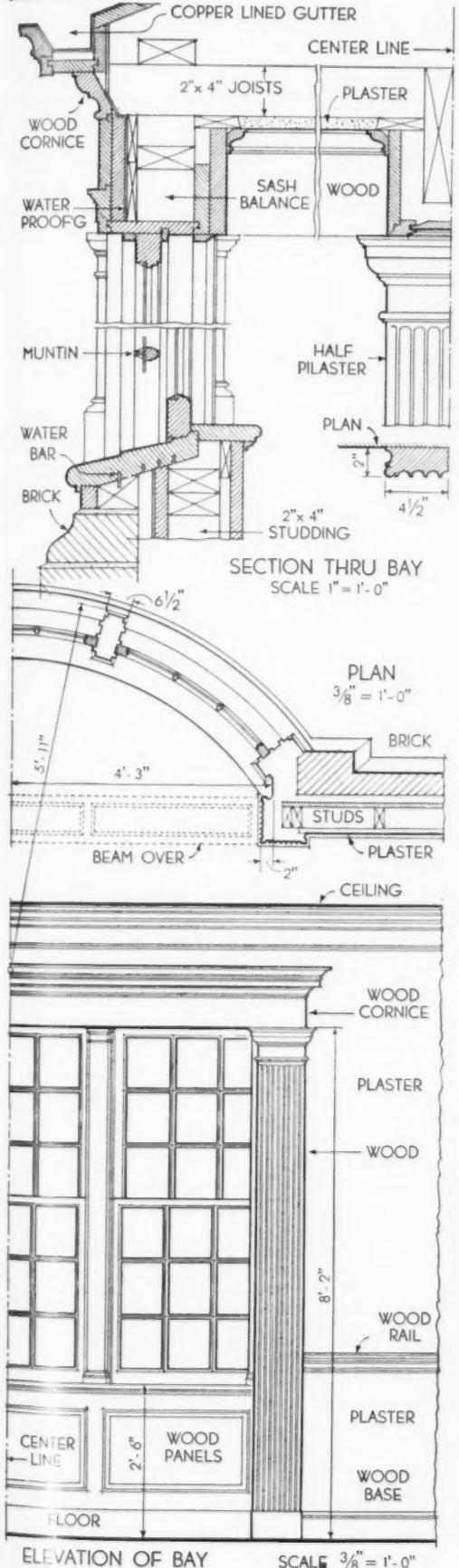


OYSTER BAY, NEW YORK

Residence for A. M. White, Jr.

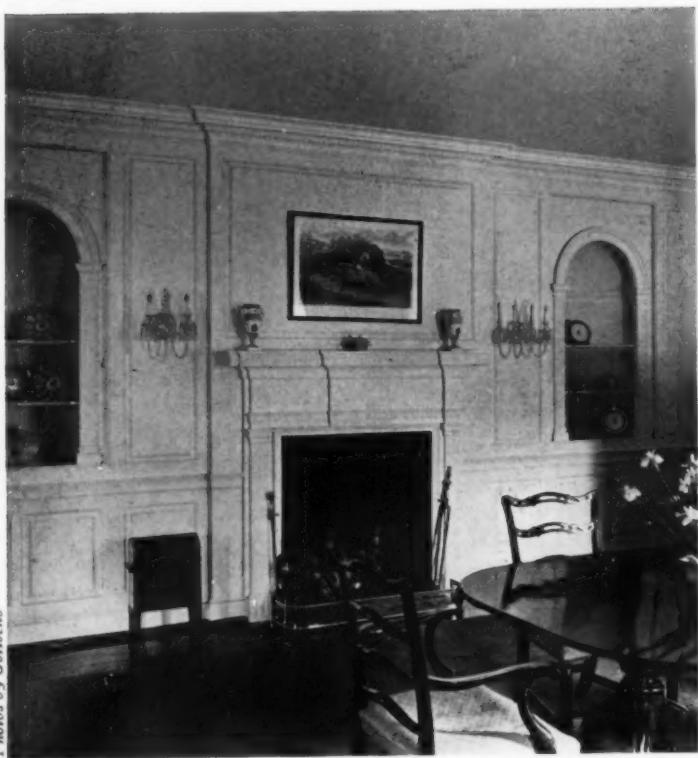


Right, main hall; right (below), living room; drawings, living-room bay. On facing page, stair hall looking through to library, and stair details.

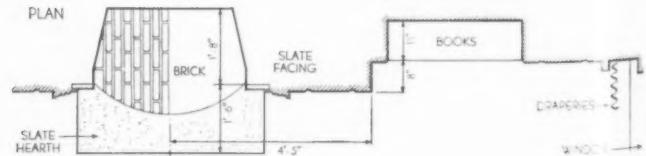
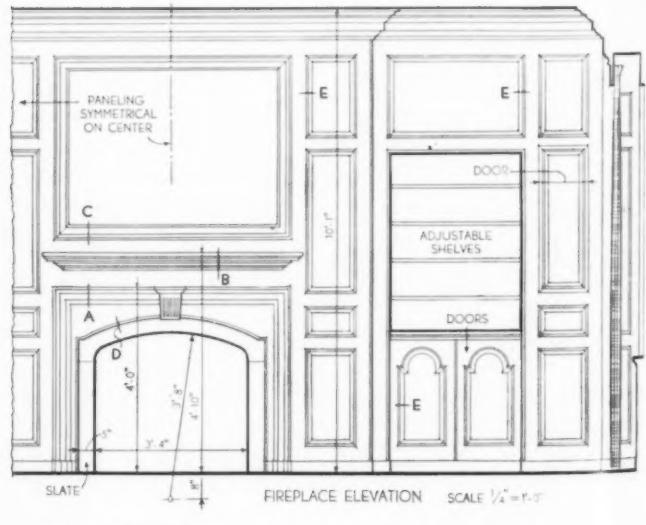
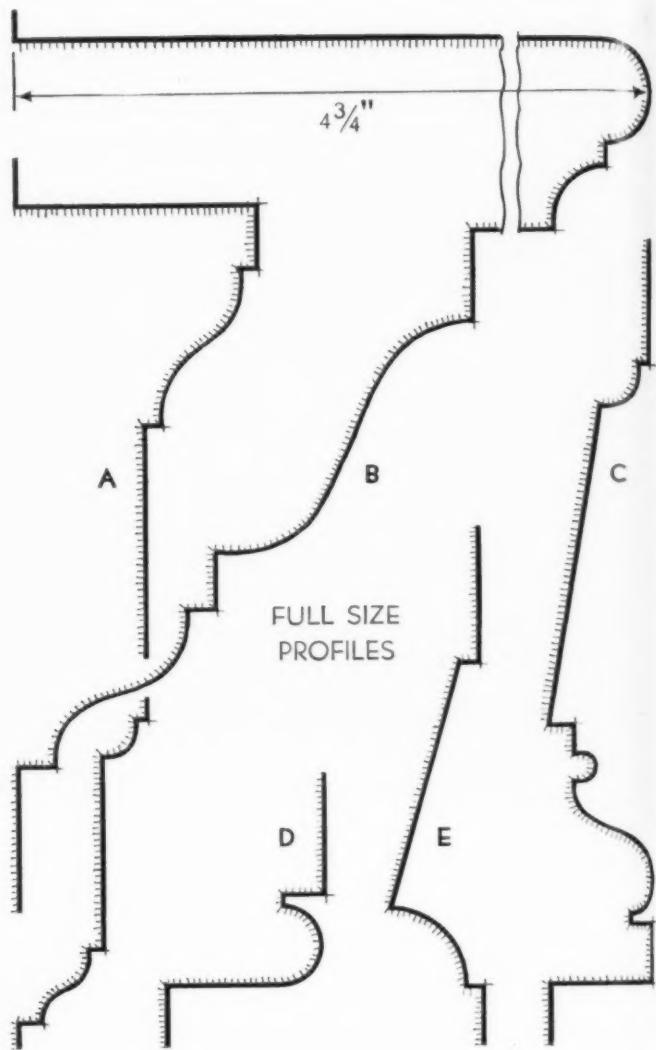


OYSTER BAY, NEW YORK: WHITE RESIDENCE

Photos by Gotscho



The dining room mantel, shown at the top, is an original from Williamsburg and has been incorporated in the wall treatment. Paneling and niches are new. The library mantel, shown below, is of pine; mantel, paneling, and bookshelves, designed for the house, are detailed at the right.





Residence in GREAT NECK, NEW YORK

HANS N. WORMANN

Architect

WHILE THE COST of this house was fairly high, considering its size, it includes many refinements not ordinarily encountered. These range from individual dressing rooms and baths for the owner and his wife, to curtain and venetian blind pockets at all windows.

Many pieces of furniture were designed as integral parts of the structure; all were the architect's responsibility. Heating system is divided into five independently controlled zones, roughly: service, living, master's sleeping, second floor, and baths.

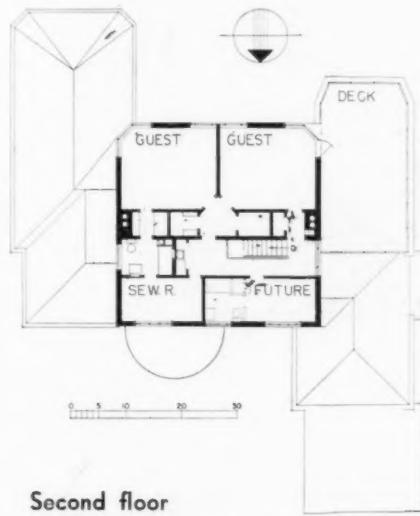
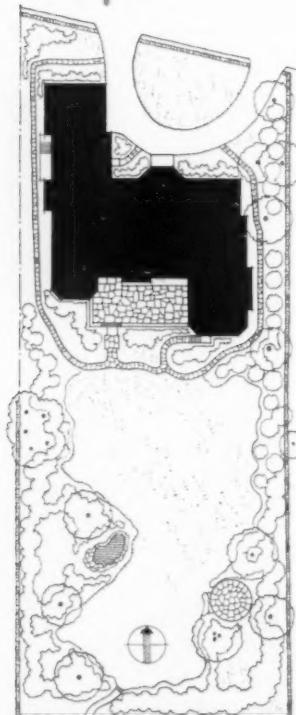




Photo by John Gass

Plot plan



Residence in GREAT NECK, NEW YORK

MATERIALS AND EQUIPMENT

FOUNDATION

Mass concrete with 1" waterproof cement parging; continuous 4-ply waterproofing membrane in basement floor

STRUCTURE

Reinforced concrete, cinder block and field-stone ashlar

EXTERIOR

Walls: Cinder block, 8" and 12" thick; 3-coat stucco, Artstone Rocor Corp.; some fieldstone ashlar

Sash and doors: Screened "Intermediate" steel casements, J. H. Thorn Co.; special steel window in sun room, Allen Automatic Co.; garage doors, lift type; glass block, dining room, Pittsburgh Corning Corp.; weatherstripping, interlocking zinc members

Roof: Shingle tile, Ludowici-Celadon Co.; sheet metal, 16 oz. copper

Insulation: Aluminum foil, all exterior walls and sundeck, Alfol Insulation Co.; roofs, 4" rock wool

INTERIOR

Floors: Basement, double concrete slabs, waterproofing between, and first floor, "Floroform" concrete; precast concrete joists and slabs, Bedford Hills Concrete Prod. Corp.; finish, cement generally; oak block, study, dining room, guest room, E. L. Bruce Co.; Roman travertine, sun room; N. C. pine, asphalt, part of basement; tile, baths

Cost, building proper, approx. 50¢ per cu. ft.

Partitions: Part cinder block, part studding, plastered, painted 3 coats, some stippled; wallpaper, living, guest, bedrooms, and part of hall; baths, tile

Doors: Flush, 3/4" thick

Stairs: Precast concrete; covered with oak treads and risers, first to second floors

Sound insulation: Between dining room and kitchen, balsam wool

EQUIPMENT

Heating: "Split" system, 2 zones air conditioned, 3 zones, 2-pipe vapor radiation, Carrier Corp.; 5 zone thermostats; oil-fired boiler; Petrometer gauge

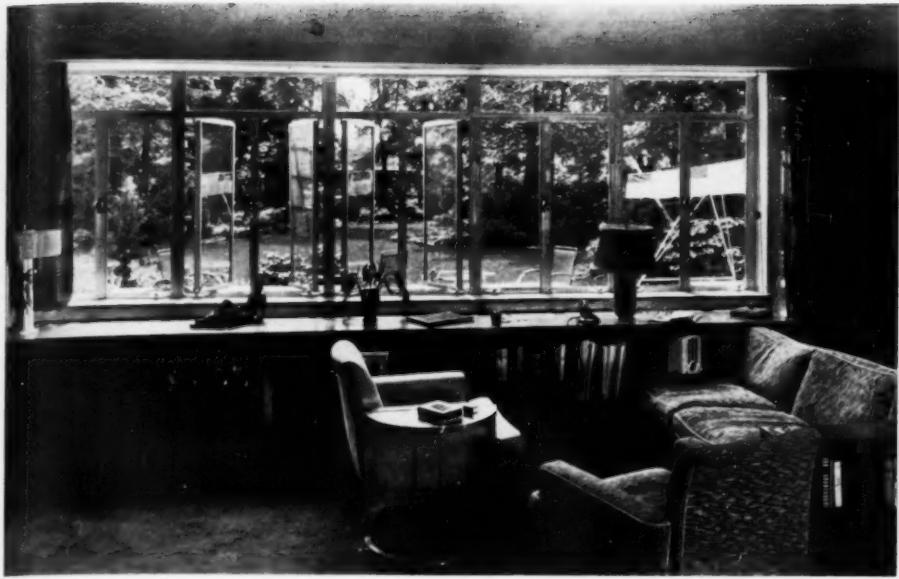
Plumbing: Water lines, brass; copper hot-water tank; fixtures, Crane Co.

Electrical: Motor operators for sunroom window and garage doors; kitchen range exhaust fan; annunciation call bells, all rooms; 2 outside alarm bells; radio outlets, all rooms; aerial built in second floor ceiling; 32 lighting circuits, 375 outlets; lighting fixtures, built-in, Kurt Versen, Inc.

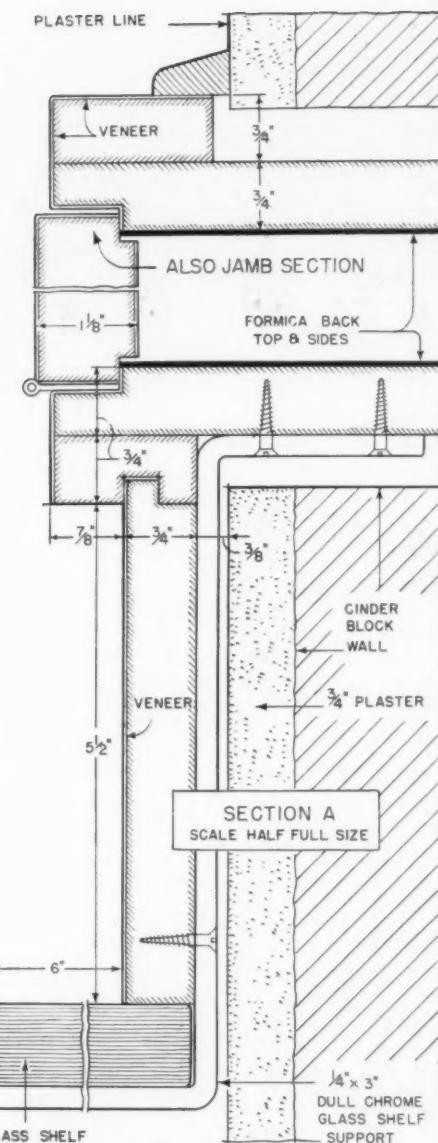
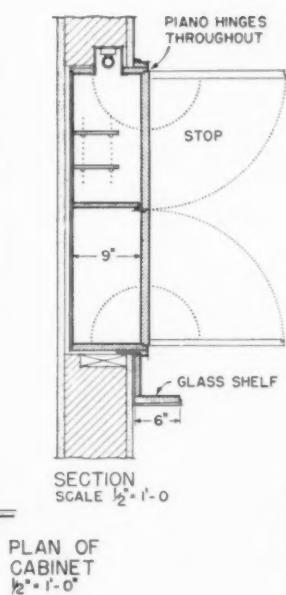
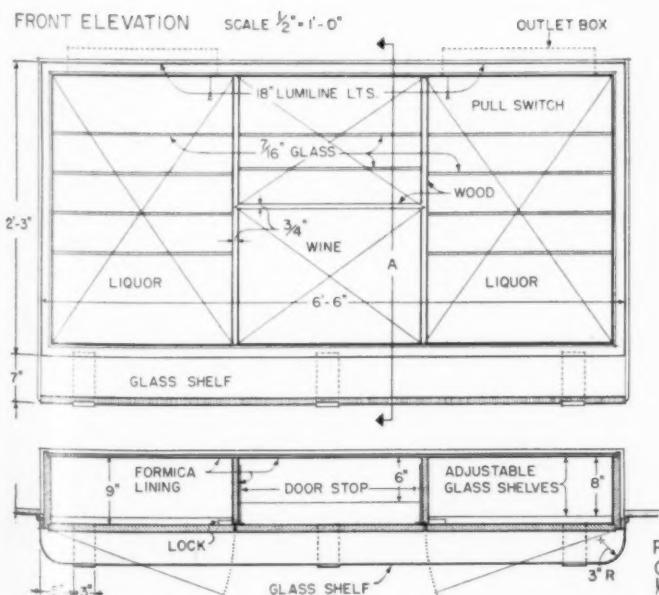
Kitchen and laundry: Gas stove, Magic Chef; refrigerator, Norge; cabinets, Excel Metal Cabinet Co.; counters, linoleum; clothes chute, aluminum, Haslett Chute & Conveyor Co.; incinerator, Kerner Incinerator Co.

Cellar: Honeycomb wine bottle racks, Herman Soellner, Inc.

Hardware: Dull chrome, Schlage Lock Co.

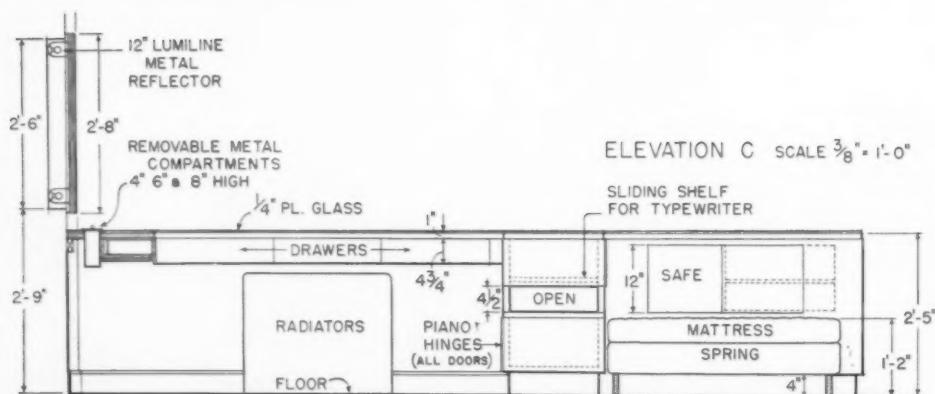


Two views of the living room; walls are of white and silver grass cloth, chenille carpeting is deep blue, draperies of handwoven fabric striped blue, beige, and red. Details of the window cabinet are shown elsewhere in this issue; details of the built-in bar are shown below. Both built-in and portable furniture are of straight-grained and crotched walnut, with handwoven upholstery.

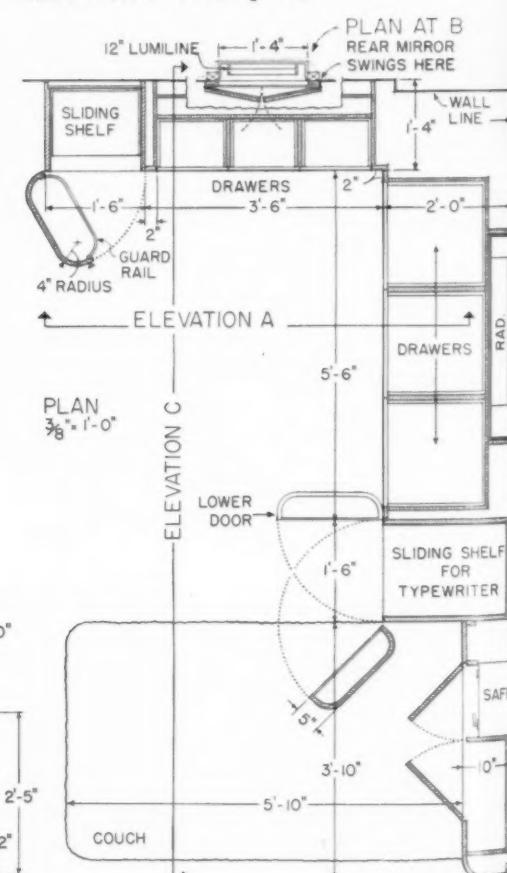
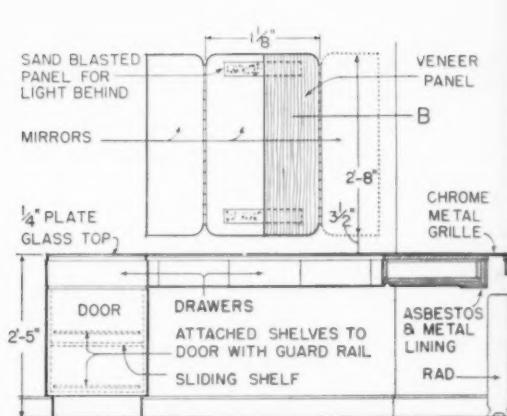
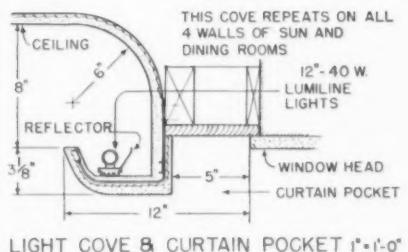




Above, view through dining room into sun room; the window at the far end of the sun room is a single sheet of plate glass which can be lowered by motor into the basement. Continuous light coves in both rooms are red lacquered, and contain 74 lineal feet of tubular lighting, 2,800 watts. Below, boudoir dressing table and desk, with details.

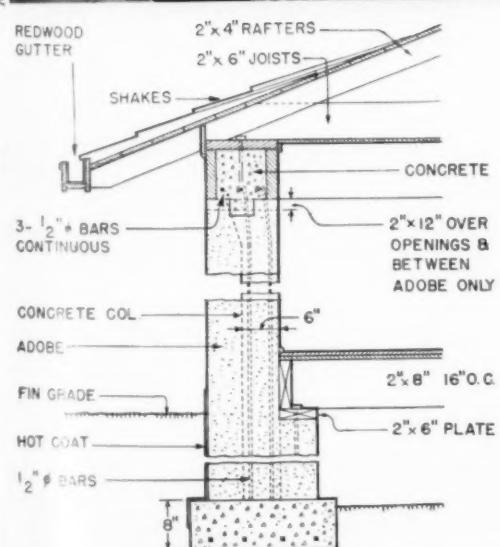


Residence in GREAT NECK, N. Y.

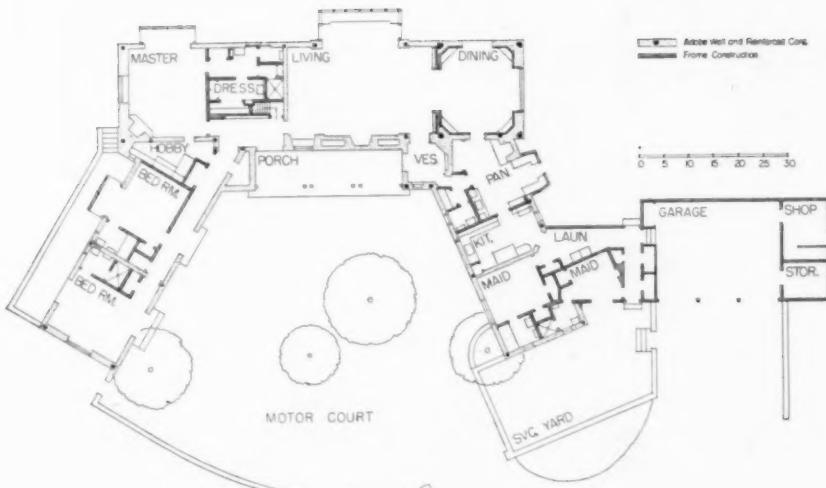




**WOODSIDE, CAL.: Residence for Mr. & Mrs. Stewart Elliott
GARDNER A. DAILEY
Architect**



Roger Starkey
 Exterior and some interior walls are Bitumals adobe brick, 12" by 18", composed of surface soil, straw, water, and Bitumals oil. Mortar was also Bitumals adobe. Concrete columns were poured in recesses left in adobe; redwood forms for collar beams remain in walls.



WOODSIDE, CALIFORNIA: Residence for Mr. & Mrs. Stewart Elliott



Above, rear terrace, showing in the foreground the bay from the master bedroom; beyond, the living-room bay. Below are two views of the pantry, which does triple duty. Besides the usual cupboards and sink, it contains a barbecue fireplace and breakfast table with benches.





Above, interior of living-room; below, dining-room. All frame walls are finished with knotty red cedar boarding. Wood studs and plates are secured to adobe walls with bent lengths of barbed wire embedded in mortar joints and nailed to framing.



MATERIALS AND EQUIPMENT

FOUNDATION

Continuous reinforced concrete

STRUCTURE

12" adobe walls generally; 24" adobe on gable walls; reinforced concrete columns and collar-beam or plate

EXTERIOR

Walls: Adobe, painted with special preparation, Triangle Paint Co.

Sash and doors: Sugar pine, out-swinging casements, painted; glass, select, A grade, Pittsburgh Plate Glass Co.; sills, quarry tile set in cement mortar

Roof: Douglas fir framing; red cedar shingles; sheet metal, 12 ga. galvanized iron

INTERIOR

Walls: Adobe exposed, painted with Texolite, U. S. Gypsum Co.; non-bearing walls, Douglas fir studs,

knotty red cedar finish and trim, lacquered, E. I. duPont de Nemours & Co., Inc.

Floors: Square-jointed oak plank except baths, lavatories and kitchen finished with Armstrong's linoleum, blue, laid over Insulite "semi-hard" hardboard; entrance porch, quarry tile; hearths, 12" by 12" hollow tile

Ceilings: Red cedar, lacquered

EQUIPMENT

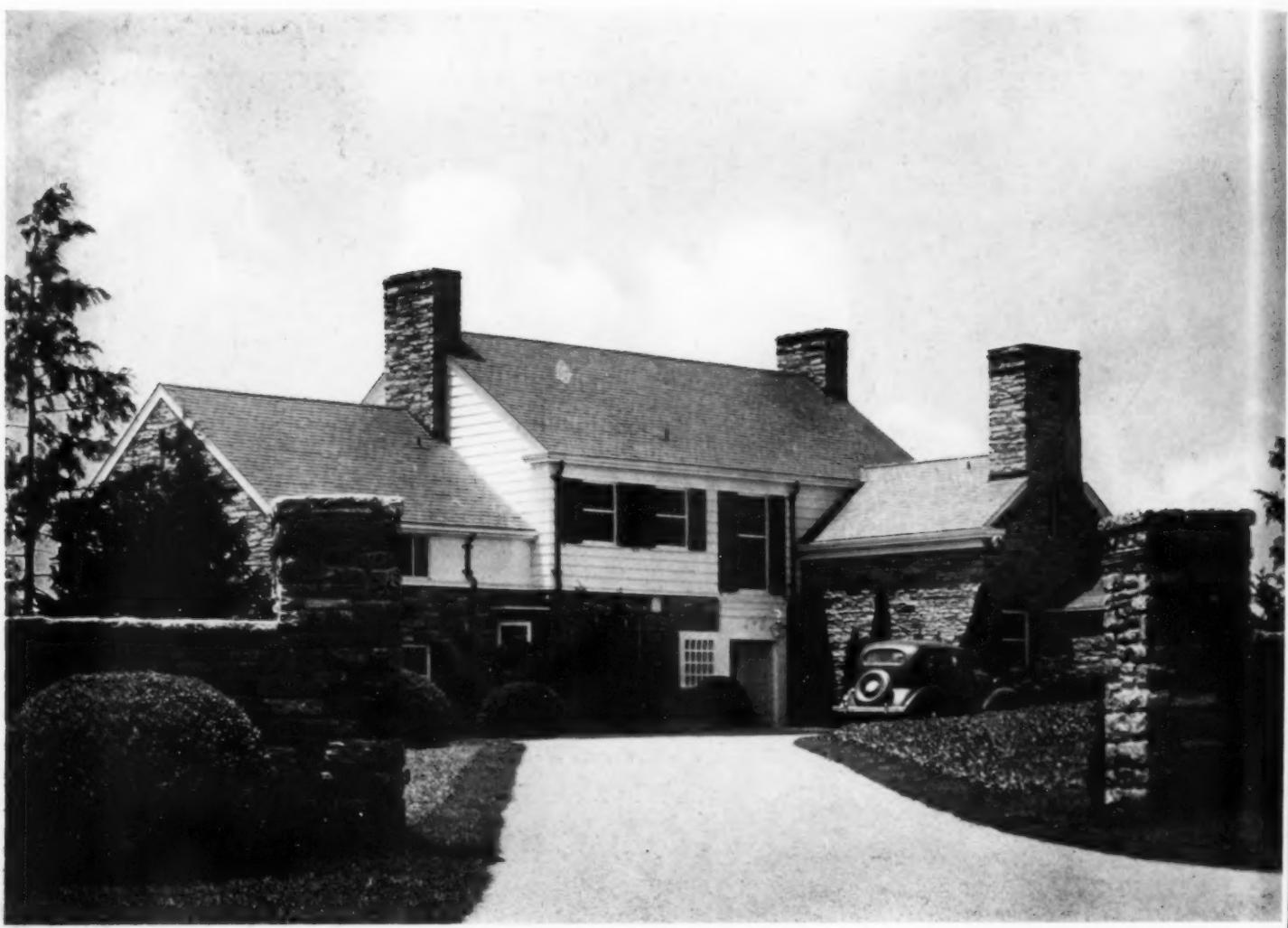
Heating: Hot water; Watrola Heat Generator, gas fired; Young convectors set in Schick enclosures, damper-controlled; $\frac{1}{2}$ " copper circulating lines; Thrush circulating pump

Plumbing: Piping, Chase copper; fixtures, Crane Co.

Electric wiring: Steel conduit in adobe; otherwise knob and tube

Hardware: Sargent & Co.

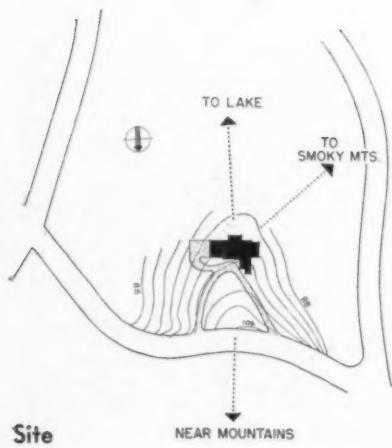
Cost: approx. 33¢ per cu. ft.



ASHEVILLE, N. C.: Residence for Mr. & Mrs. E. J. Sparks

HENRY IRVEN GAINES

Architect





On facing page, entrance front; above, south elevation; right, south end of living-room; right, below, kitchen. In addition to the usual fixtures, a dishwasher and garbage disposal unit are built into the sink.

MATERIALS AND EQUIPMENT

FOUNDATION

Poured mass concrete footings; common brick walls

STRUCTURE

Wood frame; masonry veneer

EXTERIOR

Walls: Local stone veneer and redwood siding

Sash: Metal, Detroit Steel Products Company; wood

Doors: Metal, Detroit Steel Products Company; wood; garage, "Ro-Way" lift type, Rowe Manufacturing Co.

Roof: Slate, "Buckingham", Virginia Slate Corp.; sheet metal, copper

Insulation: Sidewalls and roof, Red Top Insulating Wool, U. S. Gypsum Co.

Painting: Benjamin Moore paint

INTERIOR

Walls: Plaster, U. S. Gypsum Co.; wallpaper, Columbus Coated Fabric Co.

Floors: Oak, D. M. Rose Company; baths, tile, Mosaic Tile Company; kitchens and pantry, linoleum, Armstrong Cork Products Co.; terraces, local flagstone

Trim: White pine

EQUIPMENT

Hardware: Sargent & Co.

Kitchen: Range, refrigerator, hot-water supply, dishwasher, garbage disposal, General Electric Co.

Plumbing: Fixtures, Standard Sanitary Manufacturing Co.

Heating: Concealed radiation, C. A. Dunham Co.; stoker, Iron Fireman Mfg. Co.; boiler, U. S. Radiator Corp.

Lighting: Fixtures, Lightolier Co.

Venetian blinds: Pella, Rolscreen Company

Cost: 40¢ per cu. ft.



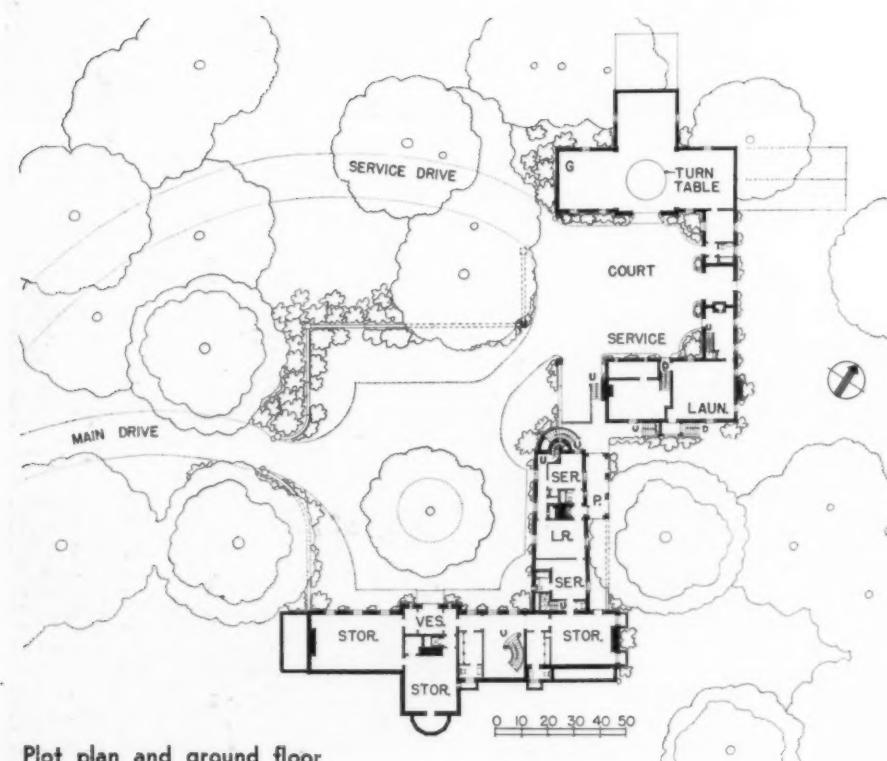


Photos by Ernest Graham

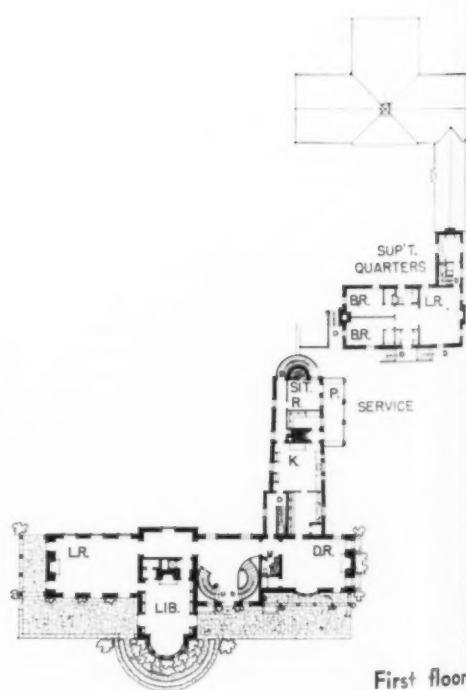
MENTOR, OHIO: Residence for Mr. & Mrs. Newell Bolton

CHARLES B. ROWLEY & ASSOCIATES

Architects



Plot plan and ground floor



First floor

MATERIALS AND EQUIPMENT**STRUCTURE**

Masonry and reinforced concrete

EXTERIOR

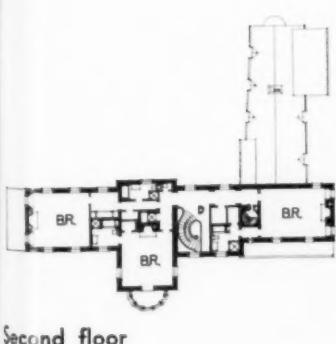
Walls: Hard local sandstone facing, "Haydite" backup, Hydraulic-Press Brick Co.; plastered inside on insulating fibre board, furred

Roof: Semi-mill construction, heavy wooden rafters widely spaced, 2" sheathing and graduated slate roof

Sash: Wood, double hung

Painting: Trim, white; shutters: first story, green; second story, brown

Cost, including service buildings: approx. 60¢ per cu. ft.

INTERIOR**Walls:** Bearing walls, "Haydite" and brick; non-bearing, gypsum block; plastered on both sides; library, panelled cherry**Floors:** Bar joists, 3" reinforced concrete slabs, wood sleepers, wood rough and finish floors; library, cherry plank**Ceilings:** First story and basement, metal lath and plaster; second story, plaster on fibre board**Stairways:** Cherry treads and handrails, white painted risers and balusters

Sandstone used in exterior walls was obtained from the bed of a nearby stream, and varies in color from warm gray to orange. Tapering service wing (see plan) produced a sloping ridge line which follows site contours. Above, entrance court (residence is named "The Courtyard"); right, main stair



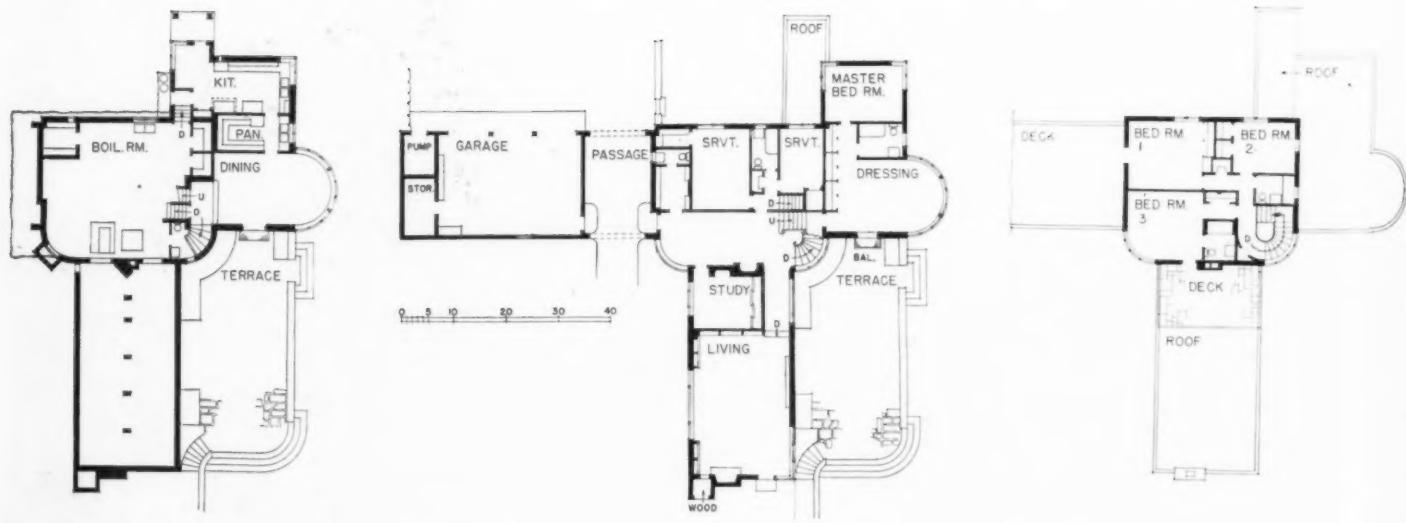


Alfred Cook

NEW CANAAN, CONN.: Residence for Mr. & Mrs. Franklin B. Kirkbride

ROBERTSON WARD

Architect



Basement

First floor

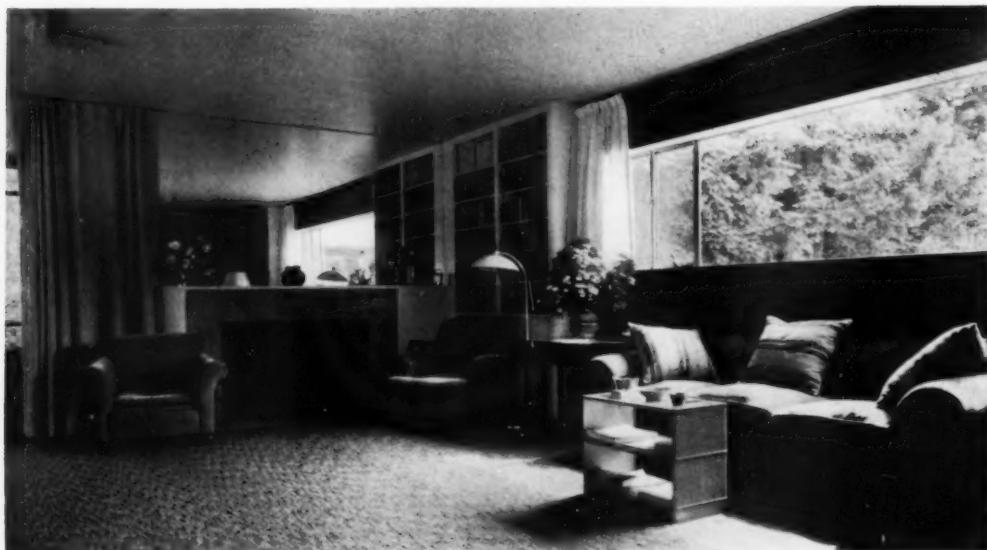
Second floor

RD
ect

Six floor levels were required to take advantage of the sloping site. On facing page, entrance front; at right, large window in stair hall was built and erected as a unit. Below, left, another view of the terrace; right, the semi-circular bay overlooks a trout stream.



NEW CANAAN, CONN.: Kirkbride residence



Photos by Alfred Cook



Upper photograph, living room interior; lower, dining room

MATERIALS AND EQUIPMENT

FOUNDATION

Concrete

STRUCTURE

Concrete block, reinforced concrete and steel

EXTERIOR

Walls: Concrete block, Bedford Hills Concrete Products Corp.

Roof: Wood framing; built-up roofing, Barrett Co.; Quarry tile deck

Doors: Steel, Hope's Windows, Inc.; garage, Overhead Door Co.

Sash: Metal, General Bronze Corp.; glass brick, Pittsburgh-Corning Corp.; screens, Kane Mfg. Corp.

Paint: Cement paint, Artstone Rocor Corp.

Insulation: Alfol, Alfol Insulation Co., Inc.; rock wool, Eagle-Picher Sales Co.
Iron work: White Plains Iron Works, Inc.

INTERIOR

Partitions: Stud, plastered, painted

Ceilings: Plastered, painted

Floors: Steel joists, concrete; linoleum finish generally, Armstrong Cork Products Co. and Congoleum-Nairn, Inc. (Sealex); oak plank, Bruce Flooring Co.

EQUIPMENT

Heating: Air conditioning, Scott Newcomb

Plumbing: Disposal system, American Sewage Disposal Co., Inc.; fixtures, Standard Sanitary Mfg. Co.

Lighting: Fixtures, Cecil K. White

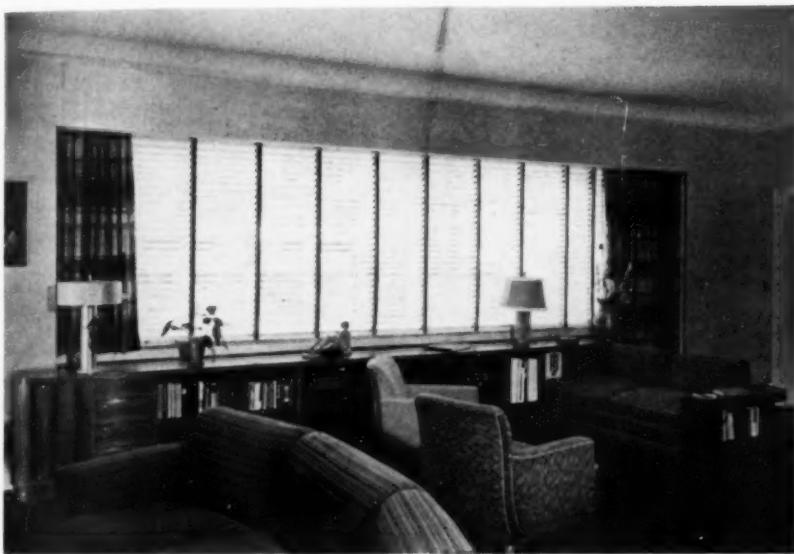
Kitchen: Cupboards, Bradley Kitchen Cabinet Co.

Cost, including fees: approx. 59¢ per cu. ft.

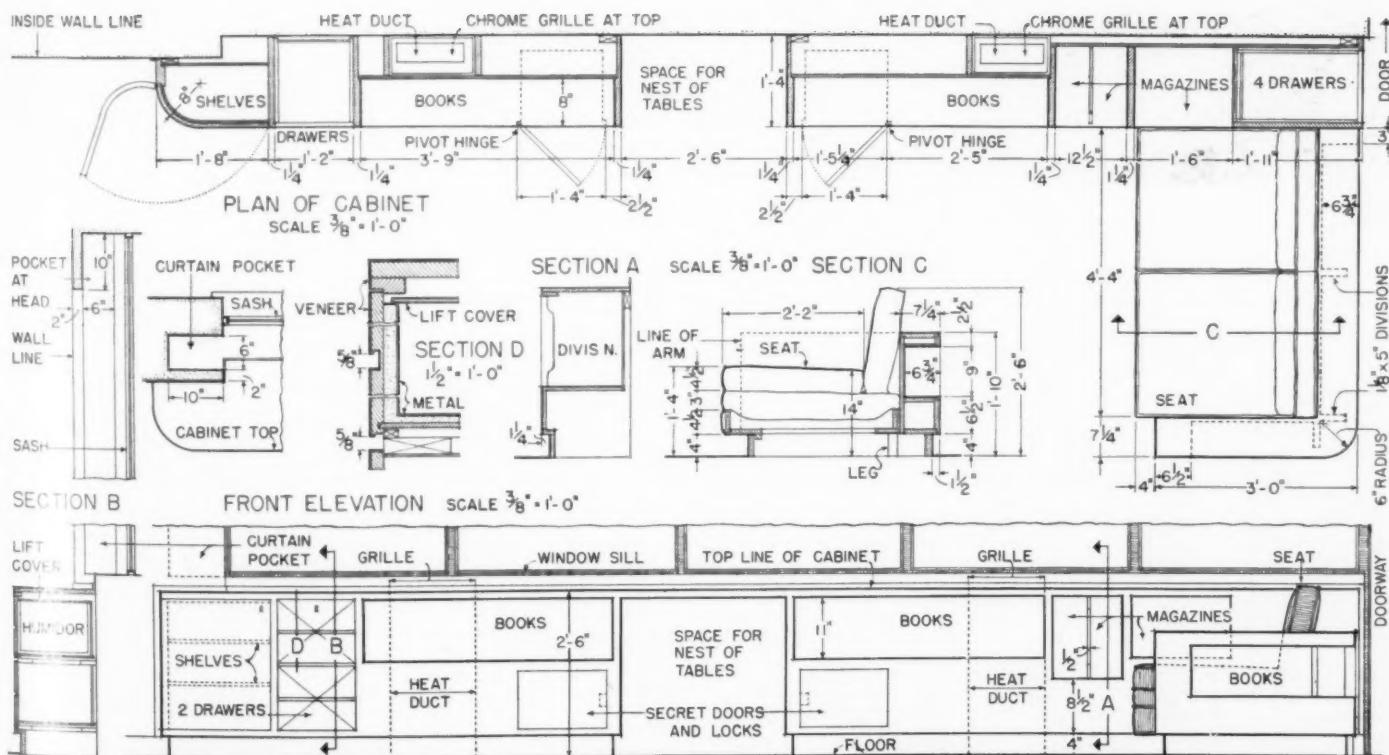
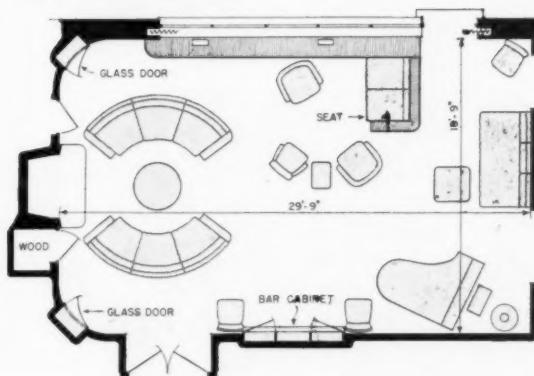
Details for Indoor Living Areas

Four pages of suggestions for the design of built-in furniture—equipment units which under a variety of conditions may be developed as functional parts of interior living areas . . .

LIVING ROOM — Under-window Cabinet

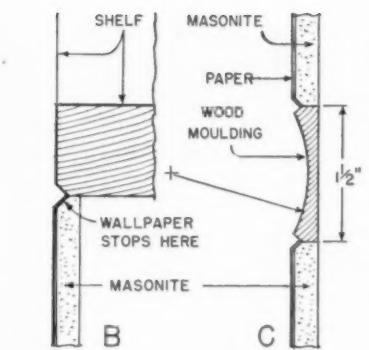


Residence in Great Neck, New York: Hans N. Wermann, architect and interior designer. Wood-work is straight-grained and crotched walnut; upholstery, handwoven fabrics in brown, beige, and blue; curtains, handwoven, striped blue, beige and red. Curtain and Venetian blind hardware is completely concealed.



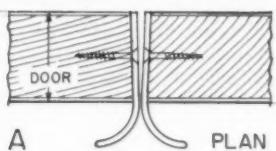
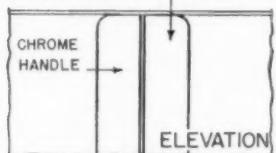
BREAKFAST ROOM

Photos by R. B. Churchill

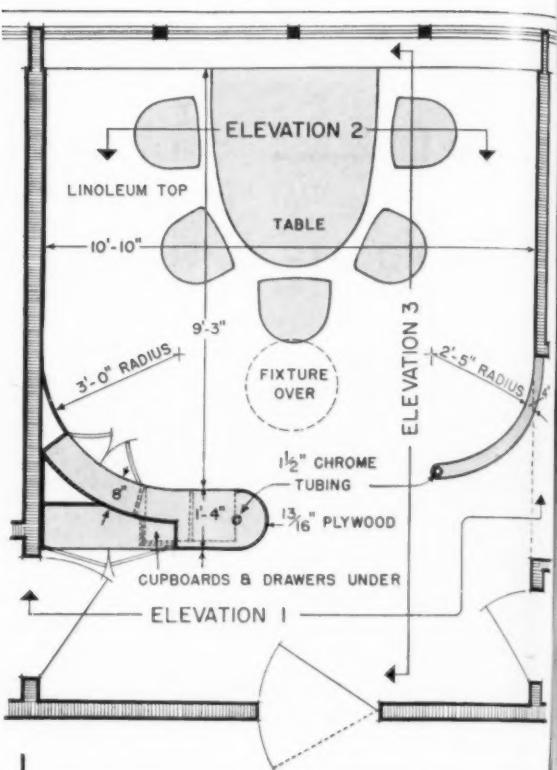


DETAILS SCALE HALF FULL SIZE

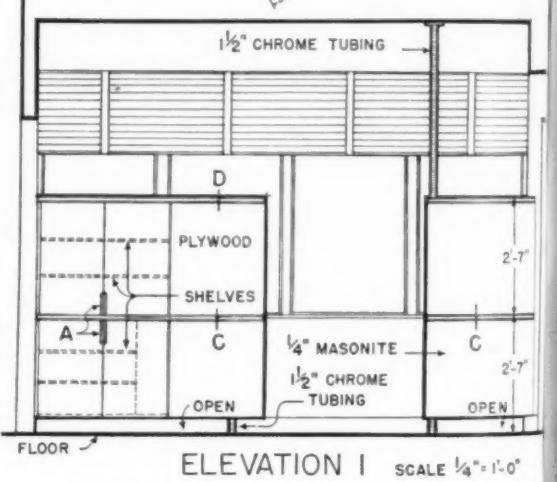
ALSO USED AS DRAWER PULL



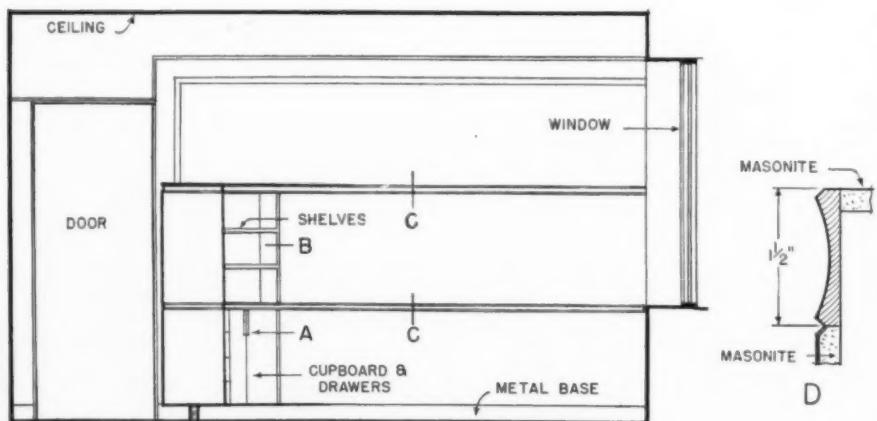
A PLAN



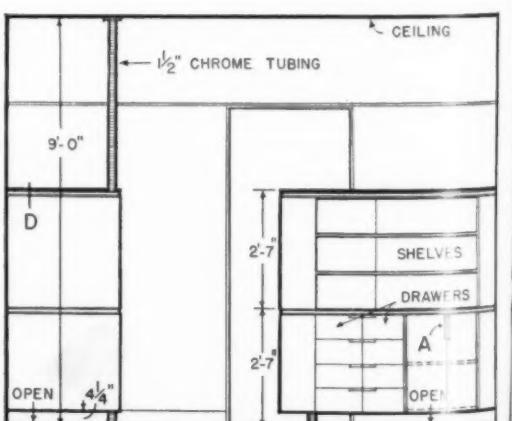
Residence in Kansas City, Mo.; alcove designed by Kem Weber; E. W. Tanner, architect. Table standard and top are covered with Armstrong's linoleum, with red lacquered hardwood edges. Cabinets and screen are designed to give privacy to occupants, since the room serves as a passageway from pantry to front door.



ELEVATION 1 SCALE $\frac{1}{4}$ " = 1'-0"



ELEVATION 3 SCALE $\frac{1}{4}$ " = 1'-0"

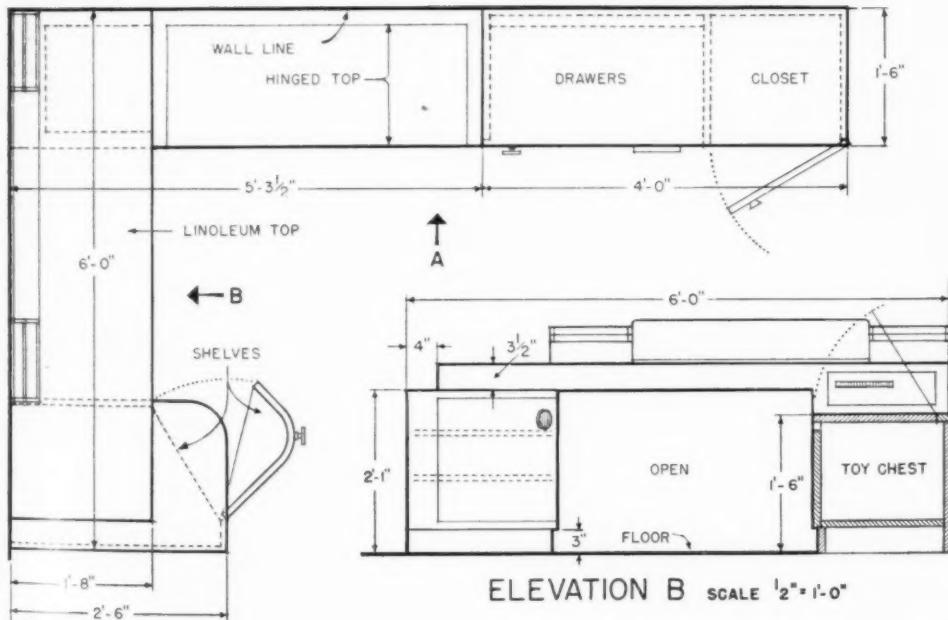
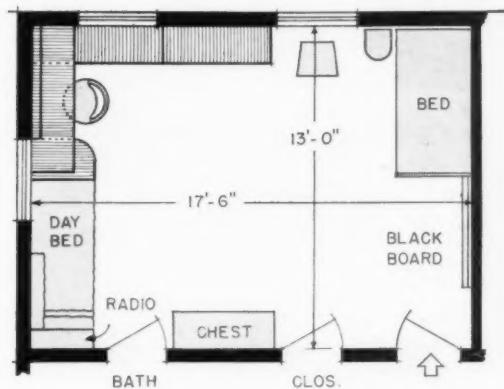


ELEVATION 2 SCALE $\frac{1}{4}$ " = 1'-0"

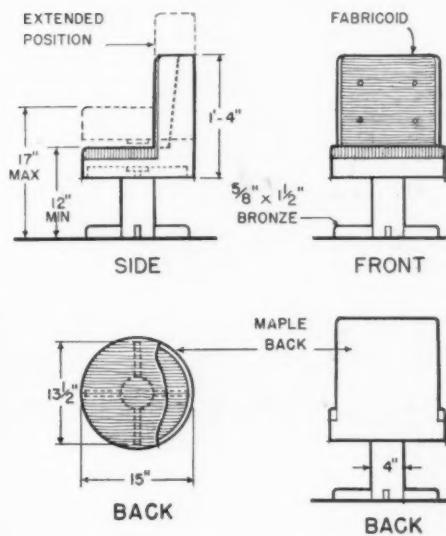
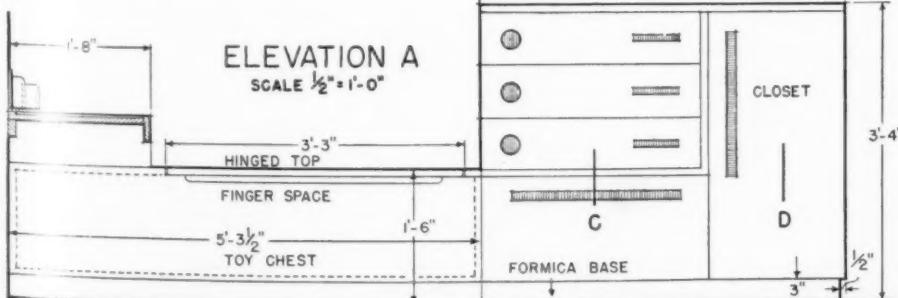
CHILD'S ROOM — Desk, Bins, and Cupboards



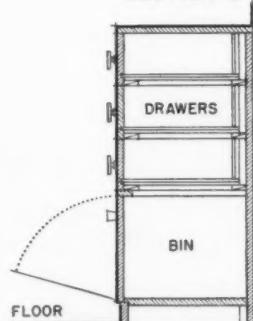
Cafritz residence, Washington, D. C.: Eugene Schoen & Sons, architects and interior designers. The floor is of cork, covered with a rug. The desk and cupboard unit is of brown maple, lacquered, with maroon Catalin knobs and pulls. The base is maroon Formica. The desk has an inset linoleum top surface.



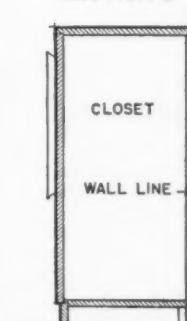
PLAN SCALE $\frac{1}{2}'' = 1'-0''$



SECTION C



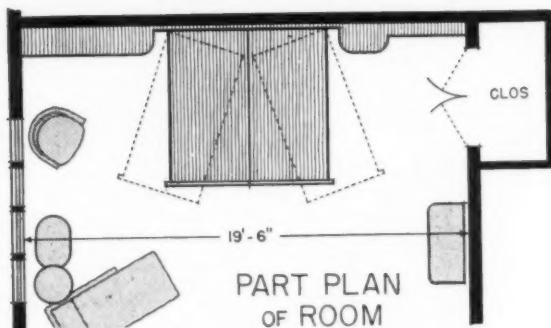
SECTION D



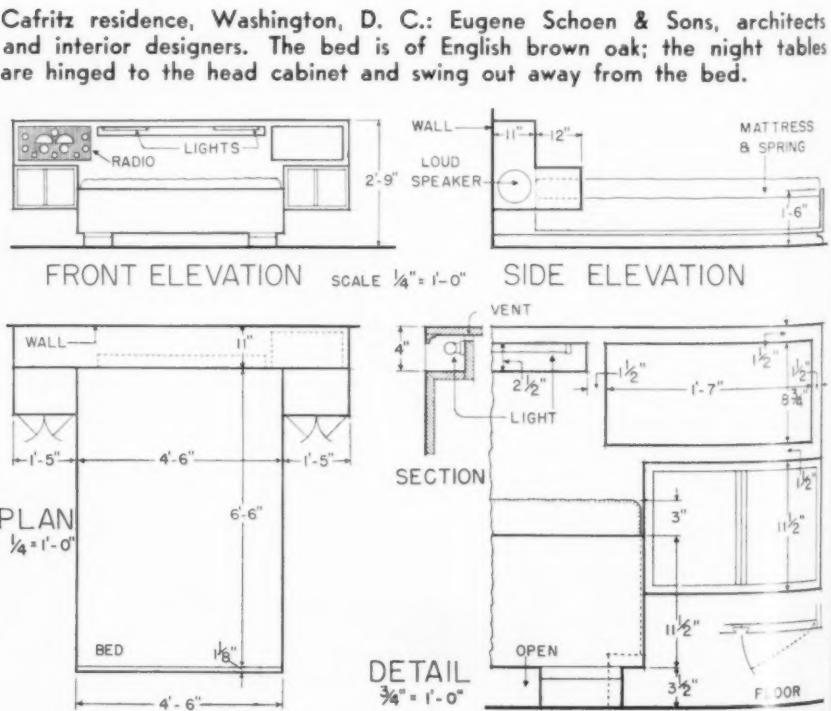
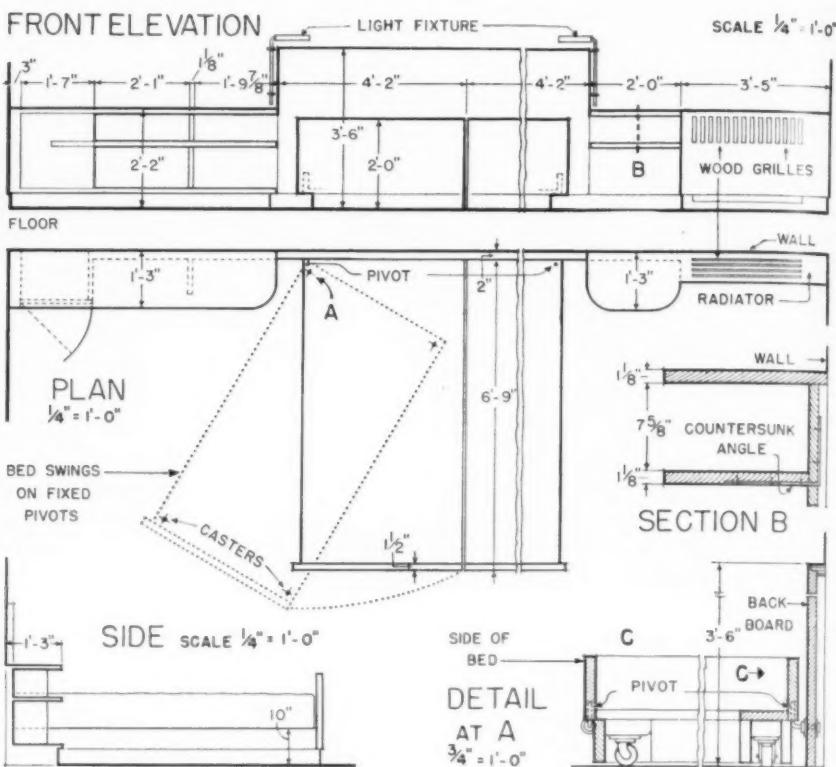
BEDROOMS – Built-in Beds



F. S. Lincoln

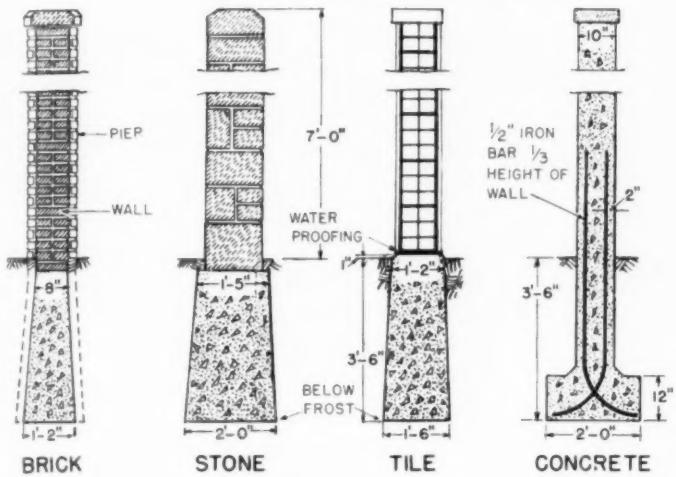


Residence in Elmsford, N. Y.: Joseph Aronson, designer. Notice that the night tables are set far enough away to permit beds to be swung out for ease in making them up.

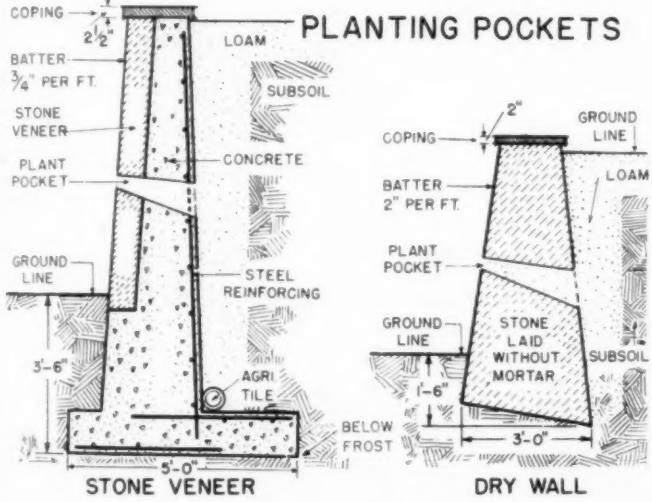


OUTDOOR AREAS—
WALL CONSTRUCTION

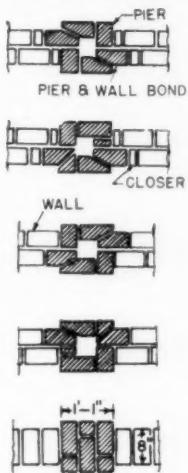
FREE STANDING WALLS



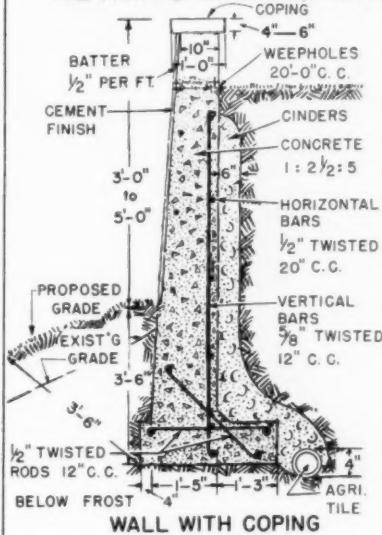
PLANTING POCKETS



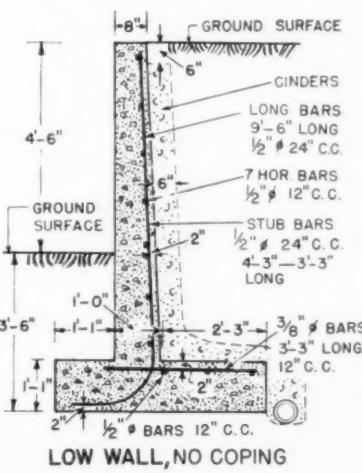
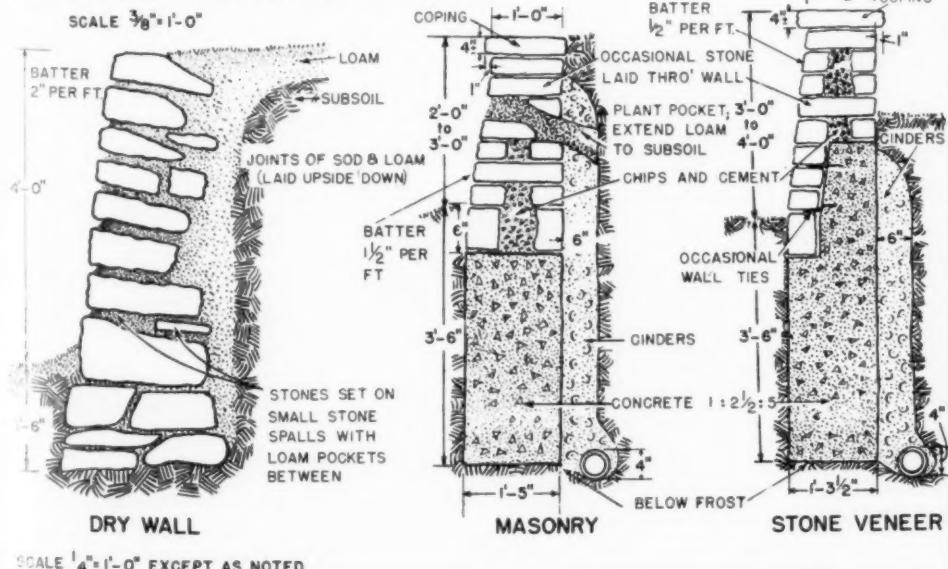
**PIER AND
WALL BOND**



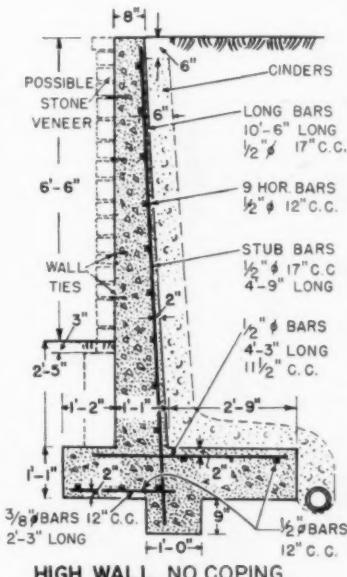
RETAIN'G WALLS, Reinf.



RETAINING WALLS, Not reinforced

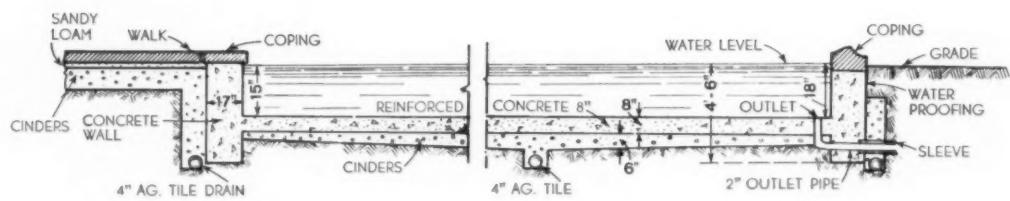


LOW WALL, NO COPING

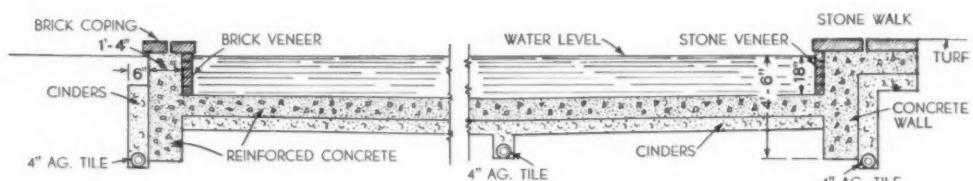


HIGH WALL, NO COPING

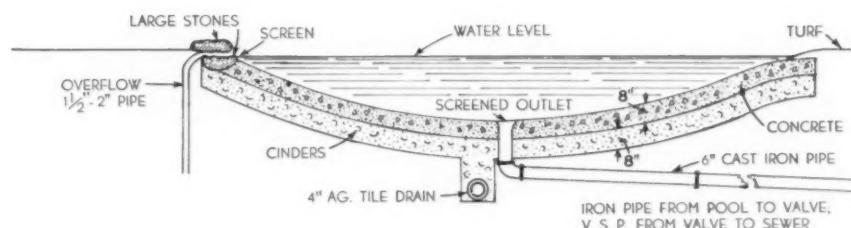
CONCRETE POOL
(NOT TO SCALE)



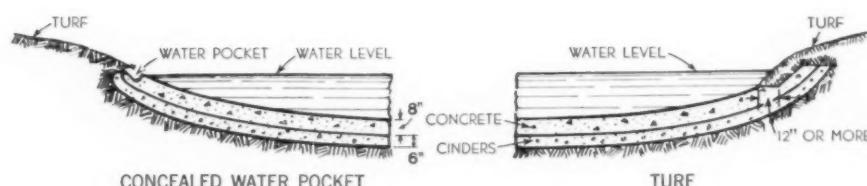
CONCRETE POOL
STONE OR BRICK VENEERED
(NOT TO SCALE)



INFORMAL POOL
(NOT TO SCALE)

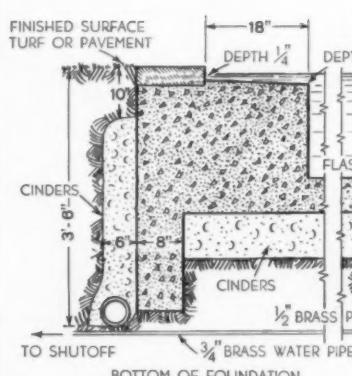


INFORMAL POOL
ALTERNATE EDGINGS
(NOT TO SCALE)



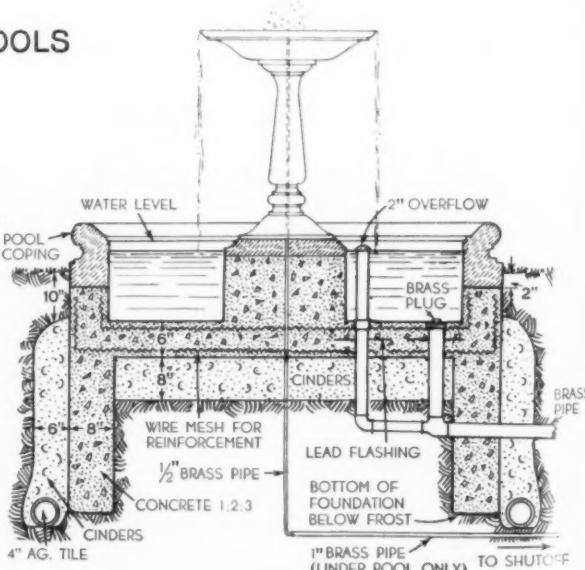
NOTE: All metal piping except lead must be protected from cinder fill. If gravel is used, protection may be omitted.

COMBINED BIRD BATHS AND LILY POOLS



BIRD BATH AT EDGE OF POOL

SCALE: $\frac{3}{8}$ " = 1'-0"

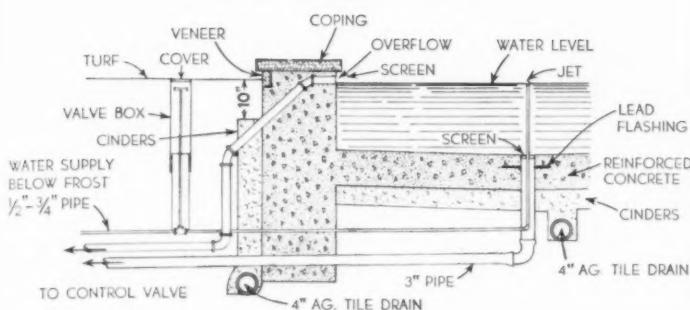


UPRIGHT BIRD BATH

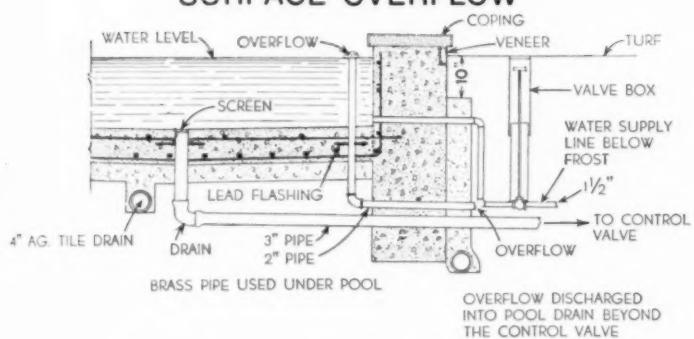
Prepared by A. D. TAYLOR LANDSCAPE ARCHITECT

OUTDOOR AREAS—
POOL PIPING — Supply and Drainage

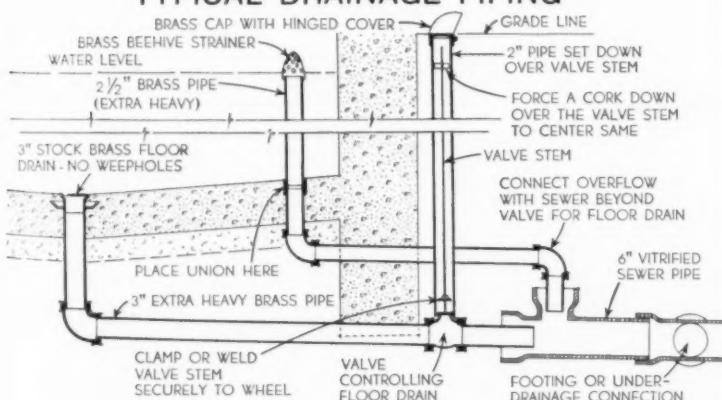
SIDE OVERFLOW



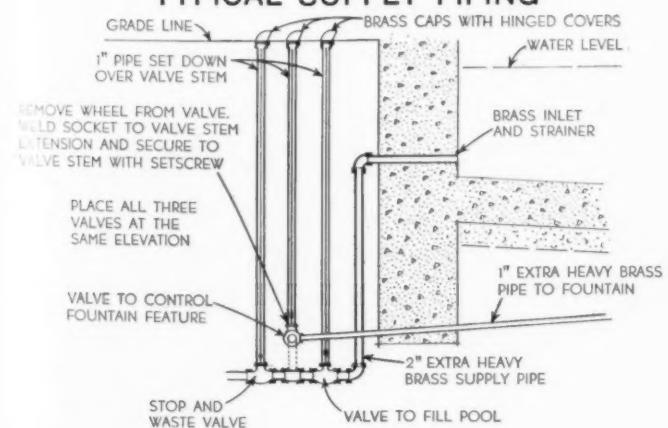
SURFACE OVERFLOW



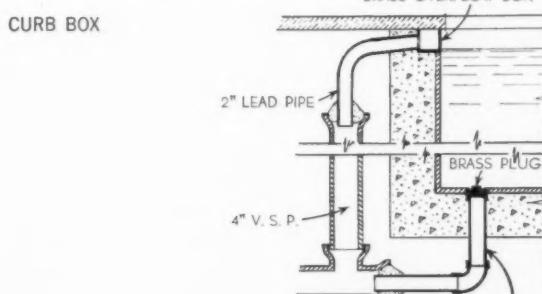
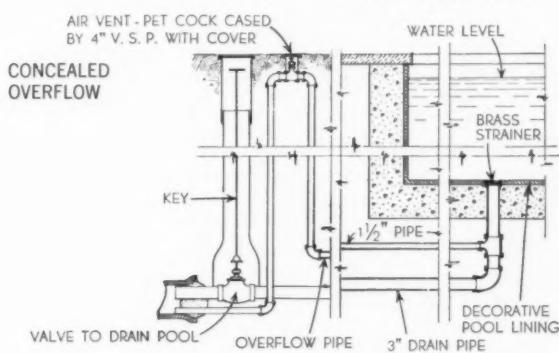
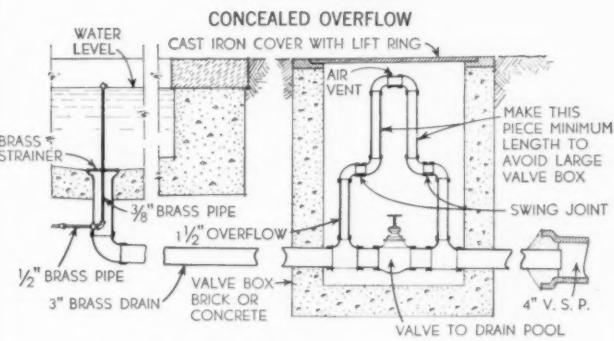
TYPICAL DRAINAGE PIPING



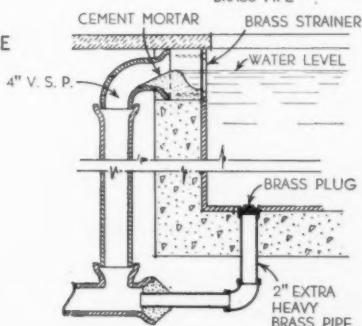
TYPICAL SUPPLY PIPING



ALTERNATE TYPES OF OVERFLOWS



VITRIFIED SEWER PIPE

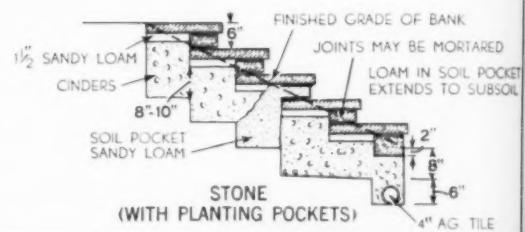
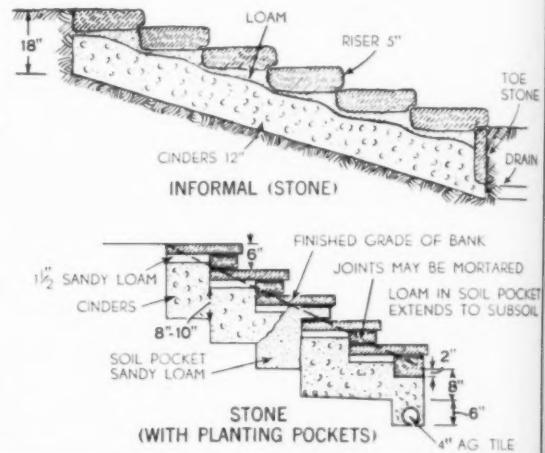
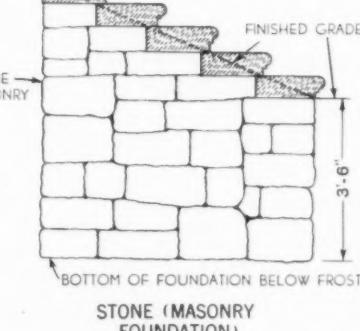
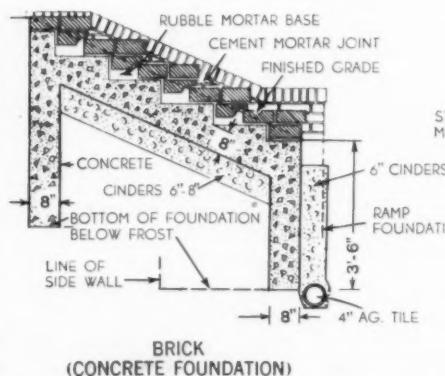
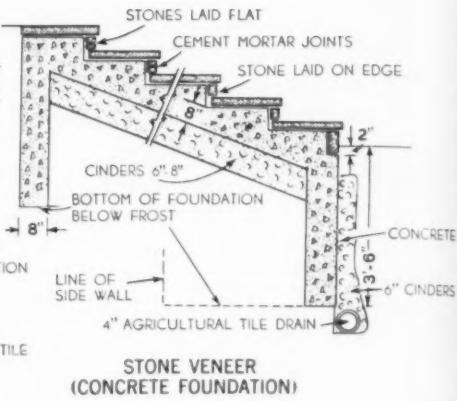
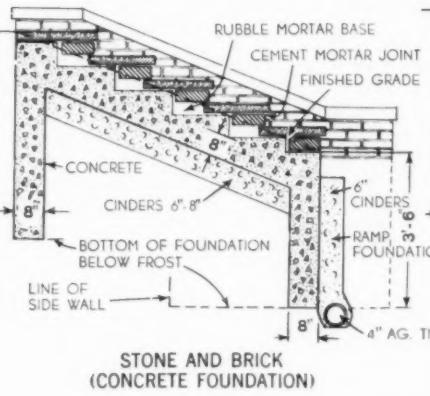
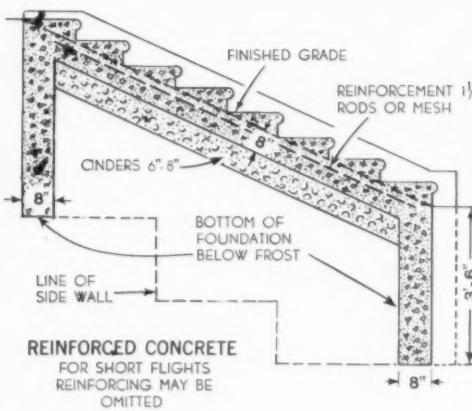


NOTE:— Pool piping may be of either iron, brass or lead. Use of extra heavy brass pipe under concrete eliminates difficulty in replacing pipe. All metal pipe should be protected from cinder fill by embedding it in concrete or by using non-ferrous, waterproof sleeves.

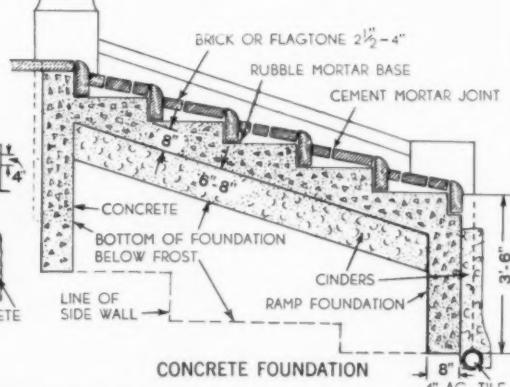
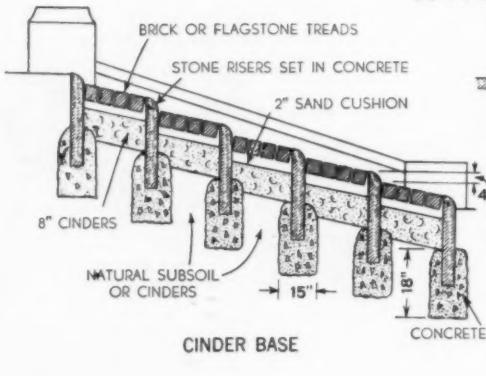
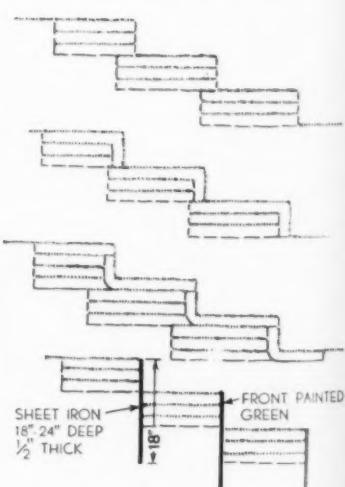
NO SCALE

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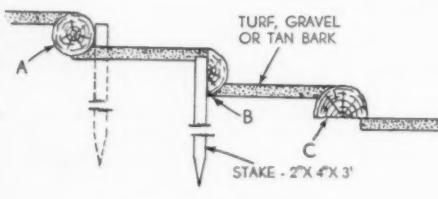
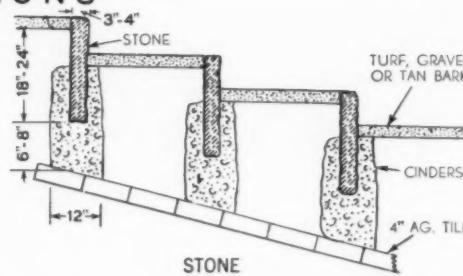
STEPS



RAMPS

TURF STEPS
ALTERNATE METHODS

PERRONS

SCALE: $\frac{1}{4}$ = 1'-0"

Prepared by A. D. TAYLOR LANDSCAPE ARCHITECT

WASH ON STEPS

